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THE CLAIMS OF THE MILITARY PHARMACIST.

THE citizen who enters the United States military service is required to surrender many of his civilian rights, not the least of which is the right to select his own pharmacist and medical attendant when ill. Willy nilly, the soldier must accept the medical service furnished by the government, and his refusal to accept treatment prescribed by the medical officer, or the medicine compounded by the military pharmacist is a punishable offense.

Governments can not, or at least should not, assume authority with respect to the lives of their citizens without accepting the corresponding obligations—the obligation in this case being to supply medical attendance and pharmaceutical service that shall be on a par with a fair average of that which is available to the civilian.

So far as surgical and medical attendance are concerned, the adequacy of the service provided by the government may be regarded as quite satisfactory, which is due to the fact that the rank and pay of the army surgeons and physicians are such as to justify men of the requisite ability and training in devoting themselves to the work.

When the pharmacist is reached, however, the conditions are the reverse of satisfactory. In his case the conditions under which he must work, and the rank and pay allotted, could not operate more effectually to drive good men out of the service and to prevent good men from entering it, if they had been devised for these specific purposes, and in military circles it is an open secret that, under existing conditions, it is practically impossible to secure desirable recruits for the Hospital Corps.

Every state and territorial division of the United States now has statutory

provisions requiring the appropriate qualification of those who compound and dispense drugs and medicines. The general government alone enjoys the questionable distinction of furnishing pharmaceutical service under such conditions as to render it next to impossible for men of the requisite ability to enter or remain in this line of work.

That the Army Hospital Corps still retains men of character and ability is due to the personal devotion of the men themselves, and to the oft repeated assurances that their acknowledged grievances would be properly adjusted.

Just where the responsibility for the long postponement of justice to these men should be placed, it is difficult for a civilian to determine, but circumstances seem to point to that section of the military establishment known as the "War Department General Staff," and is apparently due to the persistent refusal, or neglect of that body to heed the repeated recommendations of the Surgeon-General for changes that would permit the improvement of the personnel of the Hospital Corps. In his report to the Secretary of War for 1911, the Surgeon-General calls attention to the necessity for legislation to correct the evils complained of, and states that "complaints have continued to come from all quarters, that the recruits of the Hospital Corps do not furnish fit material" for the services they are expected to perform.

Military regulations may debar pharmacists in the service from criticising the acts of their superiors, but the writer not being subject to such regulations does not hesitate to say that whatever section of the military establishment is responsible for present conditions in the Army Hospital Corps, so far as pharmaceutical service is concerned, has been criminally negligent of the lives and welfare of the enlisted men who through illness or injury may need hospital treatment, and if these conditions are not improved within a reasonable length of time they will reach the proportions of a common scandal.

Both the American Medical and the American Pharmaceutical Associations have repeatedly expressed themselves in favor of legislation for the improvement of the personnel of the Hospital Corps, and if such amendments are much longer delayed it may be necessary for these associations to announce publicly that those who enlist in the army do so at the peril of their lives, in case of accident or illness.

In the last Congress there was presented a bill which has come to be known as the Hughes-Bacon Bill, designed to correct these conditions. The bill which is very brief in its terms is as follows:

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress Assembled: That the Hospital Corps of the United States Army shall hereafter be known and designed as the Medical Corps, shall constitute the enlisted personnel of the Medical Corps now authorized by law, and shall consist of sergeants major, at seventy-five dollars per month; sergeants first class, at sixty-five dollars per month; sergeants, at thirty-six dollars per month; corporals, at twenty-four dollars per month; cooks, at thirty dollars per month; privates, first class, at twenty-one dollars per month; and privates, at sixteen dollars per month, with such increase for length of service and other allowances as are or may hereafter be established by law."

There is reason to believe that the medical officers of the Army approve the bill

in its essential features, and that its enactment in practically its present form would be agreeably received by them.

At the time this is written it is impossible to predict the fate of the measure, but in case of its having been defeated the A. Ph. A. and A. M. A. should exert themselves to secure its reintroduction into the next Congress and press persistently for its enactment.

This legislation is asked for not simply as a favor to the men of the Hospital Corps, but as a measure of elementary justice to every one in the military service, any one of whom may become the occupant of a hospital and subject to the ministrations of the pharmacists and other attendants provided therein.

J. H. BEAL.

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WHEN SINNERS ENTICE.

A MONTH or so back the daily newspapers were filled with sensational accounts of the arrest of about 170 doctors, druggists and others for the alleged offense of mailing articles which the postal laws, by construction, make unmailable.

The accounts were featured under "scare heads," and in literary character reached the most approved yellow style of reportorial art. That is, they asserted few facts directly, but many by innuendo and suggestion, as for example, when it was set forth in general terms that the articles mailed were intended for immoral purposes, leaving the reader to imagine them to consist of various heinous and unmentionable agents, when as a matter of fact, in many cases at least, the articles consisted of syringes, which like hundreds of other things might or might not be used improperly. So also there was a conspicuous absence of the mention of extenuating circumstances, as for instance, that the sale of these articles would have been legal if made over the counter, and that the offense consisted not in selling the things, but in sending them by mail.

While every reputable member of pharmacy and medicine must rejoice when the fakirs in the ranks of either are run to earth, there were some features connected with the alleged exposé that did not just look right to the man who favors the square deal, as well in law enforcement as elsewhere.

In various ways the published accounts show that efforts were made, not so much to discover evidence of habitual violation of the law, as to persuade or cajole the victim into violating it. For example, we are informed that after numerous vain attempts to persuade a physician to furnish what was wanted, "then the caller in apparent despair began to weep copiously," after which profuse lachrymation we are permitted to infer that the physician succumbed, though the nature of the article supplied is not stated.

And again, "In another case the inspectors worked for months before they obtained evidence upon which a conviction would be possible."

Since it is alleged that the work was undertaken to "break up a common practice," and since the only evidence necessary would have been to have the parties supply the illegal articles by mail, why were such strenuous exertions required, and why should it have taken the inspectors "months" to obtain such evidence?

It is related with evident glee that many of the persons trapped were "respectable physicians," or other persons highly respected in their respective com-

munities, and yet we are asked to believe that these people were intentional and habitual law breakers, because after "months of effort," "copious weeping." and the use of false and fraudulent letters they were persuaded into the technical violation of a postal law which perhaps they had never heard of, and would not have understood if they had read it.

It is admitted in the published accounts that in order to obtain the desired evidence it was necessary to use letters subscribed with false signatures and filled with falsehoods—truly a fine way to preserve the sanctity of the mail sack, and by those whose supposed duty it is to guard it!

As a fair question, how many average druggists or physicians, not regularly doing a mail order business, would be likely to know of the existence of such a law, or would have been able to interpret it correctly if it had been read to them?

While it is true that ignorance of the law excuses no one (except, of course, judges and lawyers), nevertheless most people will have some sympathy for the man who is trapped into the violation of a regulation he never heard of.

The officers of the Ohio State Pharmaceutical Association feeling that injustice had been done, in some instances at least, called a special meeting of its members for a consideration of the subject, and as a result of the meeting the Council of that Association has adopted the following preamble and resolutions:

"WHEREAS, The United States Postal Laws regulating the transmission of drugs, compounded medicines and medical appliances are so indefinite in their provisions as to render it difficult or impossible to determine the character of substances which may be lawfully transmitted by mail; and

"WHEREAS, Many useful and necessary drugs, medicines and medical appliances are of such a nature that they can also be used for improper purposes when in the hands of the criminally inclined; and

"WHEREAS, Druggists innocent of any evil intent have been arrested and fined for technical violation of the said postal laws; therefore be it

"*Resolved*, That the druggists of the State of Ohio request of the Federal Congress that it make such a revision of the Postal Laws as will make clear and definite the character of drugs, medicines and medical appliances that may be lawfully transmitted by mail; and be it further

"*Resolved*, That when the articles are such as have a proper and legitimate use in medicine, druggists should not be held criminally liable for sending such articles by mail unless it be shown that such articles were mailed with guilty intent; and be it also further

"*Resolved*, That in all prosecutions for the violation of such laws the accused shall be permitted to show in defense that such articles were mailed in good faith to be used for legitimate purposes only, and without any reason to believe that they were to be used for immoral or other improper purposes."

Doubtless many of the men arrested, possibly a majority, were intentional violators of the law and no sympathy need be wasted upon them, but it is difficult to consider the raid as a whole without coming to the conclusion that the dragnet also included some who were entirely innocent of intentional wrong doing, and who were the victims of a "frame up" entirely unworthy of those entitled to call themselves officers of the United States Government.

Said the Duchess to Alice in Wonderland, "Everything's got a moral, if only you can find it." The story of the raid by the postoffice authorities has two morals—

1. Post up in the law as well as in the Pharmacopœia.
2. When sinners entice thee, consent thou not.

J. H. BEAL.

Book Reviews

PHARMACY; THEORETICAL AND PRACTICAL—A Text-Book Treating of the General Principles of Theoretical and Practical Pharmacy. 493 octavo pages. By Oscar Oldberg, Pharm. D. LL.D., Dean Emeritus Northwestern University School of Pharmacy, Chicago. Geo. D. Oglesby, Publisher, 31 Lake St., Chicago, 1913. $3.00.

This, the latest, and destined also to be the final contribution of its distinguished author to didactic pharmacy, is received with unusual interest by pharmacists at this time, notice of the author's death coming to hand just prior to the writing of these few lines.

While the work does not aim to be as comprehensive as some other manuals of pharmacy, it does present an excellent review of that heterogeneous collection of physico-chemical facts and processes that are commonly included under the title, Theory and Practice of Pharmacy.

In this volume the author is seen at his best in the elucidation of natural laws in their pharmaceutical relationship, and if age and disease had impaired his physical powers, the impairment is not reflected in the present work. Here we see the same power of critical analysis, of clear and concise definition and of comprehensive generalization that have distinguished his writings in the past, and while there is perhaps nothing absolutely new in the subject matter, the manner of its presentation is so fresh, and in such attractively written English, that the volume will be read with interest by those who long ago have attained the rank of master pharmacist, as well as by those just entering the work of their apprenticeship.

The selection of topics and their arrangement display clearly the mental attitude of one who has long been a teacher, and to those who have occupied like positions it is evident how the effort to reach the understanding and attract the interest of the student has moulded the style and thought of the author.

In form the work partakes more of the character of an essay upon the theory and art of pharmacy, rather than that of a formal text-book, that is, the style is open and discursive, seeking not merely to present as many specific statements of fact in as small a compass as possible, but rather to develop a philosophical system that shall show the relations and interdependence of the several parts of the subject, and to construct something that shall approach to a logical classification of the subject matter of pharmacy, even if that classification is artificial and dependent upon the peculiar viewpoint of its inventor.

The book is well printed and bound and rather abundantly illustrated. Many of the cuts, however, are antiquated and poorly reproduced, though some of those illustrating the implements and processes of modern manufacturing pharmacy are of good quality.

The most evident fault of the work is the entire absence of an index, though this is partially atoned for by the presence of an unusually comprehensive table of contents.

J. H. BEAL.

TREATISE ON GENERAL AND INDUSTRIAL INORGANIC CHEMISTRY. By Dr. Ettore Molinari, Professor of Industrial Chemistry to the Society for the Encouragement of Arts and Manufactures, and of Merceology at the Commercial University, Luigi Bocconi, at Milan. Third Revised and Amplified Italian Edition Translated by Dr. Ernest Feilmann, B. Sc., Ph. D. F. I. C., with 280 Illustrations in the Text, one Chromolithographic Plate and Two Phototype Plates. Large octavo XVI+704 pages. Cloth, $6 net. P. Blakiston's Son & Co., Philadelphia.

The immense strides made in the industrial applications of chemistry during the past quarter of a century have provided chemical teaching with fresh inspiration and have imparted to it a new direction.

If formerly there was a sufficient excuse for the teaching of "pure chemistry" divested of all reference to its practical applications, this excuse has been greatly lessened, if not entirely removed. Whether chemistry is pursued as a cultural study merely, or as a part of the preparation for a professional vocation, the student will fall far short of deriving the full benefit of his labors if the general subject be divorced from ample and frequent consideration of its practical applications.

The above views form the groundwork of the plan of Dr. Molinari's treatise, which may be regarded as an attempt to develop the theories and principles of inorganic chemistry from the industrial and practical standpoint, i. e., instead of considering the science independently of its practical applications, or making only brief and occasional reference to them, its industrial and professional applications furnish a foundation for the consideration of the science.

In the art of imparting instruction there is no factor more important than the enlisting of the student's sympathy in his subject as an assistant to his purely intellectual efforts, and there is no more potent method of enlisting this sympathy than by showing him the use and importance of his subject in the world's life which he is preparing to enter.

Considered from this standpoint alone, Dr. Molinari's treatise must be regarded as a noteworthy and valuable contribution to the list of college text-books on chemistry.

Of course, no chemical treatise that is not encyclopedic in compass can be said to approach completeness, but the treatise under review can be fairly said to include the major portion of the chemical facts and theories that can be profitably considered in a volume of its size and professed scope.

In cases where the views or explanations of the author are not likely to meet with general acceptance by chemists, the translator has also assumed editorial functions, and has interpolated appropriate comments that add materially to the usefulness of the volume.

The illustrations are sufficiently numerous. Most of them are good, and many of them are new in texts printed in English. The paper, type and binding are satisfactory, and the volume is a fair sample of the bookmaker's art as exemplified in college text-books.

J. H. BEAL.

Section on Scientific Papers

Papers Presented at the Sixtieth Annual Convention

GUAIACOL- AND CREOSOL-ACETIC ACIDS AND SOME OF THEIR DERIVATIVES.

ALFRED R. L. DOHME AND H. ENGELHARDT, BALTIMORE, MD.

The attention of chemists and physicians has for years been directed upon creosote from beechwood tar, and in particular upon the principal ingredients of the same, guaiacol and creosol, and their value in the treatment of tuberculosis has been generally admitted. It has been shown by several investigators that creosote is a general and effective germicide, and its therapeutic value is dependent largely upon this fact, as it will kill bacilli wherever it comes in contact with them in the system. Creosote possesses other virtues as a medicinal agent, such as stimulating the secretions and increasing the appetite, but these belong more properly to a therapeutic treatment of the subject. Buchholtz has shown that creosote is at least four times as effective a germicide as phenol; so that, other things being equal, it would naturally be preferred to the latter. Besides its direct germicidal effect, creosote possesses the undesirable property of irritating the mucous membrane of the stomach, and so pronounced is this effect that it is sufficient to practically prevent its use as such internally. It was, therefore, the aim of the chemists to produce compounds of creosote or its chief constituents, guaiacol and creosol, which are non-irritating, and which were easily split up in the system into their components, and which consequently retain their full germicidal power.

Numerous preparations have been manufactured, such as duotal, creosotal, guaiacol phosphate, benzoate, salicylate, cinnamate (styracol), camphorate (guacamphol), thiocol, æthakol, guajacetin, etc.

More than fifteen years ago experiments were carried out by us in order to produce compounds of guaiacol and creosol, which possessed the above mentioned properties, and as a result of these investigations the products described below were obtained. Although in the meantime some of these compounds have been manufactured and described by other investigators, we thought it to be of interest to give a short account of these products, the more so as some of them were obtained by a process differing from that given in this paper, and as the description of these products is rarely found in the literature.

The guaiacol or creosol radicals were introduced into the acetic acid radical, and from the resulting substituted acids, the various salts, esters, and amides were prepared. Unfortunately, these substances, as we found out later, have therapeutically little value, since the guaiacol or creosol, unlike in those esters of

organic or inorganic acids, in which these compounds figure as alcohols, is split off only partially.

Guaiacol-Acetic Acid.[1] $C_6H_4 \begin{matrix} OCH_3 \\ O.CH_2COOH \end{matrix}$

By adding 125 parts of guaiacol to a mixture of 95 parts of monochloracetic acid, and 80 parts of sodium hydroxide in about half a liter of water, and boiling the mixture for some time, the originally alkaline solution will turn acid, indicating that partial saponification or hydrolysis of the product takes place. The yield of this method, therefore, is not very satisfactory, and we found the following process preferable: Neutralize a mixture of water and 125 parts of guaiacol by adding just enough sodium hydroxide to form sodium guaiacolate, and do the same with a mixture of water and monochloracetic acid to form sodium monochloracetate. Mix both solutions and add enough water to make the liquid measure one liter. Then add caustic soda solution to make the mixture slightly alkaline. The mixture is heated to boiling for about four hours in a balloon flask supplied with a reflux condenser. The solution, which will not turn acid under these conditions is cooled and treated with an excess of hydrochloric acid, when the guaiacol-acetic acid separates out as a light brown colored oil, which soon solidifies. To remove uncombined guaiacol, the acid is treated with a solution of sodium carbonate, and then shaken out with ether. After separating the ethereal solution, the aqueous solution is acidified, and the precipitated guaiacol-acetic acid collected. It is then dissolved in much warm water, when on cooling it crystallizes out in the form of long, fine white needles, which melt at 121°, and decompose by continued heating with water into guaiacol and acetic acid. It is readily soluble in alcohol, ether, benzene, and chloroform.

The sodium salt of guaiacol-acetic acid crystallizes from water in white needles and is readily soluble in water, while the corresponding potassium salt which also crystallizes in white needles is rather difficultly soluble in water.

Copper guaiacol-acetate, $(C_7H_7O_2.CH_2.COO)_2$ Cu, crystallizes from water in fine blue needles.

Lead guaiacol-acetate, $(C_7H_7O_2.CH_2\ COO)_2$ Pb, is difficultly soluble in water, and crystallizes in wart-like masses of colorless needles.

Silver guaiacol-acetate, $(C_7H_7O_2.CH_2COO)$ Ag, crystallizes from water like the lead salt and is quite sensitive to light.

Creosol-Acetic Acid.[2] $C_6H_3 \begin{matrix} CH_3 \\ OCH_3 \\ O.CH_2.COOH \end{matrix}$

This acid is formed by a similar method as was used in making guaiacol-acetic acid, viz., heating a mixture of the sodium salts of monochloracetic acid and creosol in solution, with a slight excess of caustic soda. About 10 percent of the creosol is not acted upon and may be recovered as such. After boiling the mixture for several hours, then cooling and acidifying it, the creosol-acetic acid is precipitated and recrystallized from hot water. It forms long white needles which melt at 108°, and are sparingly soluble in water though readily soluble in the usual solvents.

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[1] Manufactured by Elberfeld Farbenfabriken in Germany, and covered by D. R. P. 85,490. Also obtained by Auwers and Haymann by saponification of the ethylester (B. B. XXVII, 2804).

[2] Manufactured by Lederer and covered by D. R. P. 83,538.

Potassium creosol-acetate forms long fine white needles when crystallized from water. It is readily soluble in hot water, though difficultly soluble in alcohol.

The copper salt is difficultly soluble in water from which it crystallizes in blue wart-shaped crystals. The lead salt which crystallizes similarly, is readily soluble in water. The silver salt crystallizes in groups of needles and lamellæ, is soluble in water, colorless, and quite sensitive to light. It may be of interest to mention that the lead and copper salts of both guaiacol- and creosol-acetic acids have low melting points.

Guaiacol-acetic acid ethyl ester.[3] $C_6H_4 \begin{matrix} \diagup OCH_3(1) \\ \diagdown O.CH_2.COOC_2H_5 \end{matrix}$

By adding to guaiacol-acetic acid about five times its weight of absolute ethyl alcohol, and passing dry hydrochloric acid gas through the solution or by heating the above mixture of the acid and alcohol with concentrated sulphuric acid (about one-third of the weight of the guaiacol-acetic acid taken) for five hours, this substance is formed. On pouring the mixture into a large volume of cold water, the ester will separate as a light yellow colored heavy oil, which, when redistilled boils at 270-271°. It possesses a pleasant cinnamon-like odor, is insoluble in water, and easily soluble in alcohol and ether.

Creosol-acetic acid ethyl ester. $C_6H_3 \begin{matrix} \diagup CH_3 \\ -OCH_3 \\ \diagdown O.CH_2.COOC_2H_5 \end{matrix}$

This compound was prepared similarly to the guaiacol compound and was found to possess a similar but more distinct, pleasant, aromatic odor, and the same solubilities and color. It boils at 276-277°.

Guaiacol-acetic acid amide.[4] $C_6H_4 \begin{matrix} \diagup O.CH_3 \\ \diagdown O.CH_2CONH_2 \end{matrix}$

If the above-described guaiacol-acetic acid ethyl ester is shaken continuously in a well-cooled bottle with an excess of concentrated ammonia water (35 percent NH_3) for about fifteen to twenty minutes, and then allowed to stand, the oil will be changed to a mass of white needles of guaiacol-acetic acid amide and the contents of the bottle will become a solid crystal cake. As the rapid formation of the amide is apt to cause some of the uncombined oil to be included in masses of the former, it is desirable to frequently break these masses of needles up by means of a stirrer or glass rod until no more lumps or masses are observed. It was often found necessary to rub these masses up in a mortar to insure complete conversion into the amide, and the best yields were obtained if the reaction was allowed to continue for about twenty-four hours. The crystals of the amide were filtered off, washed with cold water to remove the excess of ammonia, and recrystallized from hot water, using an excess of water to prevent the amide from separating out as oil, which it will do if too little water has been taken for dissolving it. If all the ammonia is not removed by washing with cold water, some of the amide will be saponified when it is heated with the water for recrystallization. It crystallizes in fine white needles arranged in fan-shaped clusters and melts at 138°. It is soluble in hot water, alcohol, and ether, and is colorless and tasteless.

[3] Obtained by Auwers and Haymann by the action of sodium guaiacolate on monochloracetic ester (B. B. XXVII, 2804).

[4] Manufactured and covered by D. R. P. 108,342 by the Actien Ges. fuer Anilinfabrikation, Berlin. Obtained by the action of chloracetamide on sodium guaiacolate.

The amide is saponified by moderate heating with solutions of caustic alkalies.

Creosol-acetic acid amide. $C_6H_3 \begin{cases} CH_3 \\ OCH_3 \\ O.CH_2CONH_2 \end{cases}$

This substance is prepared from creosol, just as the guaiacol-acetic acid amide is prepared from guaiacol, and crystallizes from warm water in fine white needles, which are odorless and tasteless. Its melting point is 127° and like the guaiacol-acetic acid amide it is saponified by caustic alkalis. Its solubilities are the same as those of guaiacol-acetic acid amide.

Below we append a tabular statement of some of the compounds of the various phenols with monochloracetic acid and their melting or boiling points:

	M. P.	B. P.
Phenol acetic acid	96°	285°
Phenol acetic acid ethyl ester		251°
Phenol acetic acid amide	101.5°	
α-Naphtol-acetic acid	190°	
α-Naphthol-acetic acid ethyl ester	173°	
α-Naphtol-acetic acid amide	155°	
β-Naphtol-acetic acid	151/152°	
β-Naphtol-acetic acid ethyl ester	48/49°	
β-Naphtol-acetic acid amide	147°	
Thymol-acetic acid	148°	
Thymol-acetic acid ethyl ester		290°
Thymol- acetic acid amide	96/97°	
Guaiacol-acetic acid	121°	
Guaiacol-acetic acid ethyl ester		270/271°
Guaiacol-acetic acid amide	138°	
Creosol-acetic acid	108°	
Creosol-acetic acid ethyl ester		276/277°
Creosol-acetic acid amide	127°	

We have also prepared the corresponding compounds of purified creosote from beechwood tar. We have made thus, creosote-acetic acid, its ethyl ester and its amide, all of which are mixtures and possess the same properties as those of the compounds which constitute them.

RESEARCH LABORATORIES OF SHARP & DOHME, Baltimore, June, 1912.

ESTIMATION OF IRON IN REDUCED IRON.

O. E. WINTERS.

Many methods for the determining of iron in reduced iron have been devised in recent years. In reviewing the various processes offered, opinion seems to be about equally divided as to whether the percentage of the total iron or of the metallic iron shall be taken as standard by which the value of reduced iron is to be gauged.

For estimating the total iron, the method which is described in the text of the Dutch, German and Italian Pharmacopœias stands out most prominently. In this process the iron is dissolved in acid, the resulting ferrous salt oxidized with potassium permanganate and the ferric salt estimated iodometrically in the usual way.

For the estimation of metallic iron only, the mercuric chloride method as given

in the Swiss, Belgian and Swedish Pharmacopœias and in Krauch-Merck, "Chemical Reagents, their Purity and Tests," 1907, page 116, and the iodometric method described in the United States, Austrian, and Japanese Pharmacopœias are applied. The French Codex gives a gasometric method; the British Pharmacopœia, one in which the iron is mixed with copper sulphate and the ferrous salt formed is titrated with standard bichromate solution; the Danish Pharmacopœia, one in which the iron is acted upon by ferric chloride in an atmosphere of CO_2 in order to prevent oxidation, titrating the resulting ferrous salt with standard permanganate solution. The Hungarian Pharmacopœia simply directs to glow the iron in the air and weigh the oxide formed.

The requirements by the various Pharmacopœias are as follows:

Dutch	84.6% of metallic iron	Japanese	90% of pure iron
German	90% of metallic iron and 96.6% of total iron		
Italian	98% of total iron	British	Not less than 75% of metallic iron
Swiss	90% of metallic iron	Danish	90% of metallic iron
Swedish	90% of metallic iron	Hungarian	80% of metallic iron
		United States	90% of metallic iron

The methods in the different Pharmacopœias given in full are as follows:

Dutch Pharmacopoeia: One hundred mgs. of iron are dissolved in 20 cc. of diluted sulphuric acid, then mixed with sufficient one-half percent potassium permanganate solution to produce a persistent pinkish color. After the excess of permanganate has been removed by a few drops of alcohol, 2 gm. of potassium iodide are dissolved in the solution and the mixture allowed to stand for one hour. The liberated iodine is then titrated with tenth-normal sodium thiosulphate solution, of which not less than 17.1 cc. should be used.

German Pharmacopoeia: One gm. of reduced iron is dissolved in 50 cc. of diluted sulphuric acid, and the solution made up with water to measure 100 cc. Ten cc. of this solution are mixed with sufficient half percent potassium permanganate solution until a persistent pink color is produced. The excess of permanganate is removed by the addition of a few drops of tartaric acid solution. Two gms. of potassium iodide are then added and the mixture allowed to stand in a well-closed bottle for one hour. The iodine is then titrated with tenth-normal sodium thiosulphate solution, of which at least 17.3 cc. should be used.

Italian Pharmacopoeia: One gm. of iron is dissolved in 25 cc. of diluted sulphuric acid and after solution has taken place the liquid is mixed with distilled water to measure 100 cc. To 10 cc. of this solution potassium permanganate solution is added until a pink color is obtained. The excess of permanganate is then removed by a few drops of alcohol, and after the addition of 1 gm. of potassium iodide in 5 cc. of water, the mixture is allowed to stand in a glass-stoppered bottle for half an hour at a temperature from 35° to 40° C. The liberated iodine is then titrated with tenth-normal sodium thiosulphate solution, of which not less than 17.5 cc. should be used.

Swiss Pharmacopoeia: Five decigrams of reduced iron are added to the hot solution of 5 gm. of mercuric chloride in 50 cc. of water, the mixture heated for half an hour on a steam bath, shaking from time to time, and then allowed to

cool. The solution is made up with water to measure 100 cc. and filtered. Fifty cc. of the clear filtrate mixed with 10 cc. of diluted sulphuric acid should require at least 40.25 cc. of potassium permanganate solution to produce a persistent pink color.

Belgian Pharmacopoeia: A mixture of 1 gm. of iron and a solution of 5 gm. of mercuric chloride and 50 cc. of water in a 100 cc. graduated flask is heated for 20 minutes on a water bath, shaking occasionally. After cooling, sufficient water is added to make the volume measure 100 cc. and the mixture allowed to settle. Ten cc. of the clear liquid are then transferred to a glass-stoppered bottle, mixed with 20 cc. of diluted sulphuric acid and then drop by drop a one-half percent solution of potassium permanganate is added until a faint but persistent reddish color is obtained. The excess of permanganate is then removed by the addition of a few drops of alcohol. Two gm. of potassium iodide are then added and after having the bottle well stopped the mixture is allowed to stand for one hour at ordinary temperature. The liberated iodine is then titrated with sodium thiosulphate solution, of which at least 14.3 cc. should be used.

Swedish Pharmacopoeia: Five-tenths gm. of reduced iron and 5 gm. of mercuric chloride are dissolved in 50 cc. of boiling water, the mixture heated for a few minutes on a water bath, shaking occasionally, and after cooling, sufficient water is added to make the solution measure 100 cc. The mixture is then filtered and 25 cc. of the clear filtrate, after the addition of 10 cc. of diluted sulphuric acid, is titrated with tenth-normal potassium permanganate, of which at least 20 cc. should be used.

Krauch-Merck's Method: "One gm. iron is brought into a 100 cc. measuring flask, 10 gm. of finely powdered mercuric chloride and 50 cc. of boiling water are added and the mixture kept boiling on wire gauze over a small flame for five minutes, shaking frequently. The flask is then filled up to mark at once with cold water. After cooling to 15° C. the flask is filled up again to mark, shaken well and left standing well stoppered for settling. The solution is filtered and 10 cc. of the filtrate are titrated with 1/10 normal permanganate of potash solution, under addition of 10 cc. diluted sulphuric acid. At least 16 cc. should be used of the permanganate solution. In order to control this test, dissolve in the titrated solution 2 gm. of potassium iodide, leave stand stoppered for one hour at a temperature of 20° C., and then titrate with 1/10 normal hyposulphite solution using starch solution as indicator. One cc. of 1/10 normal potassium permanganate or 1/10 hyposulphite solution is equal to 0.00559 gm. metallic iron."

U. S. Pharmacopoeia: (Text of this method well known.)

Austrian Pharmacopoeia: Three-tenths gm. of reduced iron are well mixed with 10 cc. of potassium iodide solution and 15 dgm. of iodine under cooling. When solution has taken place, the volume is made up with water to measure 100 cc. Fifty cc. of the solution should require not more than 10.3 cc. of 1/10 normal sodium thiosulphate solution to render the solution colorless.

Japanese Pharmacopoeia: Pour 10 cc. of potassium iodide solution on 0.3 gm. of reduced iron in finely powdered state and add gradually, under cooling and shaking, 1.5 gm. of coarsely powdered iodine; as soon as the iron and iodine have completely dissolved, dilute the solution to 100 cc. with water and set it

aside; titrate 50 cc. of the clear solution thus prepared with decinormal sodium thiosulphate solution, then not more than 10.3 cc. of the latter solution should be required for the complete decoloration.

French Codex: Five-tenths gm. of reduced iron is treated with diluted hydrochloric acid and the hydrogen is collected. In the case of pure iron, about 200 cc. of hydrogen should be obtained, measured under normal conditions of temperature and pressure.

British Pharmacopoeia: If 0.25 gm. of reduced iron be added to a hot solution of 1 gm. of copper sulphate in 15 cc. of water, in a flask that can immediately be well corked, and the whole be shaken occasionally during ten minutes, the liquid, after being rapidly filtered with the minimum of exposure to air, and acidulated with sulphuric acid, should not cease to yield a blue precipitate with solution of potassium ferricyanide until at least 33.7 cc. of N/10 volumetric solution of potassium bichromate have been added.

Danish Pharmacopoeia: Five-tenths gm. of the iron is heated in a 100 cc. graduated flask with 5 gm. of anhydrous ferric chloride in 50 cc. of boiled and cooled water. After cooling, the volume is made up with boiled and cooled water to measure 100 cc. and the mixture allowed to settle. Twenty cc. of the clear liquid, acidulated with 50 cc. of boiled and cooled diluted sulphuric acid, is titrated with tenth-normal potassium permanganate, of which at least 48 cc. should be used for every 0.1 gm. of reduced iron taken.

Hungarian Pharmacopoeia: One gm. of iron is heated in the presence of air for about fifteen minutes, when 1.34 gm. of iron oxide should be obtained.

In examining the above methods I found that those given for estimating the total iron work very satisfactorily, but that those described for determining metallic iron are open to criticism. In the iodometric method, the accurate weighing and transferring of iodine is a tedious operation, and the iron has to be powdered very fine in order to be completely dissolved. Even after prolonged standing, a coarsely powdered preparation will not be entirely converted into ferrous iodide. I found when working under the best possible conditions that results obtained varied as much as 1.5 percent.

With the mercuric chloride methods as described above, the results obtained agreed very closely. I may mention, however, that the time allowed for heating on a water-bath is insufficient to completely dissolve the iron. Even when the heating under these conditions is prolonged, it is difficult to distinguish between the undissolved iron and the deposited mercury. The modified method as given in Krauch-Merck, in which it is directed that the mixture be heated over an open flame, not only shortens the time of the estimation by about one-half hour, but also insures the complete solution of the iron.

The gasometric method gives good results, but has the disadvantage of being troublesome in manipulation, and besides this, depends too much on physical conditions, i. e., temperature and air pressure.

The method described in the British Pharmacopoeia, although giving results agreeing closely with those obtained by the mercuric chloride method, is, like all estimations in which the end point of the titration is found by spotting, subject to the personal equation.

The method as given in the Danish Pharmacopœia is not only a tedious operation, but gives low results. In no instance was I able to obtain a clear final filtrate.

These methods were applied to two samples of reduced iron, A and B, and the following results were obtained: Sample B contained sulphide in an excess of the amount allowed by the U. S. P. This sample was examined in order to ascertain whether or not sulphides had any influence on the results obtained by these processes.

As will be seen from the attached table, the presence of an excess of sulphide has no appreciable effect upon the results obtained with the method given for total iron or with the iodometric process. However, when the mercuric chloride method is used, a reaction seems to take place between the iron sulphide and mercuric chloride, as the result of which figures are obtained which are apparently too high.

Dutch		German		Italian	
A	B	A	B	A	B
97.7%	97.8%	97.6%	97.8%	97.0%	97.8%
97.9%	97.7%	97.5%	98.0%	96.9%	97.7%
		97.6%	97.7%		

Swiss		Belgian		Swedish		Krauch-Merck	
A	B	A	B	A	B	A	B
91.4%	97.2%	91.2%	96.4%	91.3%	97.0%	91.6%	97.4%
91.2%	96.7%	91.7%	96.6%	91.7%	97.3%	91.7%	97.4%
						91.6%	97.5%

United States		Austrian		Japanese	
A	B	A	B	A	B
91.0%	93.2%	89.0%	91.4%	88.6%	91.8%
88.8%	93.8%	88.4%	89.9%	90.0%	90.1%
89.3%	92.0%	90.0%	90.5%	89.1%	

French		British		Danish	
A	B	A	B	A	B
90.3%	97.1%	89.6%	96.6%	81.6%	86.2%

Hungarian			
Heated 15 min.		Heated 1 hr.	
A	B	A	B
87.2%	85.4%	93.7%	92.3%

In conclusion, I wish to say that the modified mercuric chloride method, when the sulphides are within the limit allowed by the U. S. P., is the most satisfactory. On account of its accuracy, simple manipulation, and shortness in carrying it out, this method cannot be too highly recommended.

While adding but little to the information already at hand, I trust that the results may be of some interest to the Revision Committee in selecting a method for the determination of iron in reduced iron to be inserted in the text of the U. S. P. Ninth Revision.

I wish to thank Dr. Herman Engelhardt, at whose initiative this work was undertaken, for advice and assistance in carrying it out.

INCREASE IN STRENGTH OF POTASSIUM HYDROXIDE VOLUMETRIC SOLUTION ON STANDING.

A. H. CLARK, PH. G., CHICAGO, ILL.

During the course of the investigation on the keeping quality of standard volumetric solutions, and reported during the past three years, and also in practice as well, I noted a peculiar thing regarding the keeping of standard potassium hydroxide V. S.

While the facts, as related, may not be new to many of you, I have been unable to find a statement in the literature covering this particular point. On inquiry I have found but one chemist that has noted the same thing as I have regarding this solution. I believe that wider publicity should be given this important matter, and hence this brief note.

Both normal potassium hydroxide V. S. and fiftieth normal *increase* in strength materially on standing, the latter in particular. The data that I have is not complete, as it was some time before I could bring myself to believe that this is true, and some of the records were not preserved. One normal solution which I now have originally had a factor of 1.0235, and now has a factor of 1.0600. This is about two years old. Others have shown about the same increase, but the figures are not available. In the case of N/50 potassium hydroxide solution, the increase is more marked and rapid. I have seen a solution, 10 cc. of which would exactly neutralize two cc. N/10 acid increase in strength, on standing over night, until but 8.5 cc. were required to neutralize 2 cc. N/10 acid.

The explanation offered by the one chemist mentioned above was that the alkalinity of the glass was taken up by the solution. I am unable to offer anything further in the way of explanation than this. The character of glass from which the container is made may have considerable to do with it. The N/50 solutions, on which I noted such an increase, were kept in a 500 cc. volumetric flask, while the normal solutions were kept in a two-gallon amber bottle.

THE SAPONIFICATION OF FIXED OILS WITHOUT HEAT.

G. N. WATSON, LAWRENCE, KANSAS.

While determining the saponification number (Koettstorfer number) of several samples of linseed oil, I found it necessary to leave some of them over night before completing the operation. All of the samples had been treated with N/2 alcoholic KOH. (25 cc.). Some of them had been heated the prescribed half hour, and some had not. While titrating the samples with N/2 HCl the next morning, I titrated a few of the unheated samples before discovering my mistake. Upon redetermining the saponification values of these samples by the usual method, I was surprised to find that the results by both methods checked very closely.

Tests were made on a linseed oil, whose saponification value was known, to

determine whether saponification could be carried to completion within a length of time that would permit of the method being used in the determination of saponification numbers of oils. It was found that saponification began immediately and proceeded very rapidly during the first few minutes; that at the end of one-half hour, 9.8 cc. of N/2 KOH or 70 percent of the amount required for complete saponification (14 cc.) had been consumed; that at the end of two hours, 13.6 cc. or over 97 percent had been consumed in the process of saponification. At the end of five hours, 99.5 percent, and at or before the expiration of sixteen hours, saponification was complete, as was shown by the number of cc. of N/2 KOH used in the process and also by the fact that at the end of twenty, thirty-two and sixty-four hours, respectively, the same number of cc. of N/2 KOH were found to have been consumed.

To illustrate graphically, let the time, expressed in hours represent the ordinates and the number of cc. of N/2 KOH consumed, the abscissas. It will be noted that saponification is very rapid during the first thirty minutes and is nearly completed at the end of five hours, while at the expiration of sixteen hours or less, saponification is complete.*

To test the method still further, other fixed oils were saponified both with and without the application of heat. The results of the investigation are as follows:

Cc. of N/2 KOH Consumed in Saponification of 2 cc. of Oil.

	Hot, ½ Hr.	Cold, 16 Hrs.
Lard Oil	15.64	15.64
Castor Oil	13.22	13.12
Exp. Oil of Almond	13.98	14.04
Oil of Poppy	13.83	13.83
Cocoanut Oil	18.76	18.76
Olive Oil	13.93	13.93
Sesame Oil	13.78	13.73

A period of sixteen hours was allowed for the above saponifications in the cold. It will be noted that practically the same result was obtained by both methods.

A search of the literature on the subject of saponification in the cold developed the fact that Henriques (Annual Report, Connecticut Agr. Exp. Station, 1892, p. 30), worked out a process for the saponification in the cold of fats. His method is based upon the solution of the fat in petroleum ether, in which condition it is easily attacked by the alcoholic alkali. With those fats, which give easily volatile ethers it was found that the results by the cold process were somewhat higher than those by the hot process, due no doubt to the fact that the volatile ethers were driven off during the process of heating.

Where but a few determinations are to be made and the results are wanted at the earliest possible moment, the usual method of saponification by heat must necessarily be employed. However, when a large number of determinations are to be made and especially when the facilitites for heating are limited, much time can be economized by letting the samples, after treating with alcoholic alkali, stand over night. The above results indicate that the operator may rest assured of the proper saponification values.

UNIVERSITY OF KANSAS.

*The drawing furnished with this paper could not be reproduced.—EDITOR.

THE OLEORESIN OF PSEUDOTSUGA TAXIFOLIA.

O. A. BEATH, AND EDWARD KREMERS, PH. G., PH. D., MADISON, WIS.

It is a sad comment on American pharmacy that the question as to what is the botanical source of Oregon balsam should not yet have been solved. Thanks to the kind cooperation of the Forest Products Laboratory located at Madison and of the field men in the state of Oregon, another attempt at a distance has been made. Owing to a misunderstanding, the oleoresin supplied had been obtained by boring into the trunk of the trees rather than by collecting the oleoresin secreted in the pustules of the bark. While the results of the preliminary chemical study recorded in the paper do not solve the problem of Oregon balsam, they are of some slight phytochemical value. Continued cooperation having been promised by the Bureau of Forestry, this and other problems are to be taken up in the future.

A CRYSTALLINE ACID FROM THE OLEORESIN OF THE DIGGER'S PINE.

O. A. BEATH AND EDWARD KREMERS.

The oleoresin of Pinus sabiniana is of interest not only because of the heptane which constitutes the bulk of the oil, but also because of the difficulties which the resin has offered in the study of the oleoresin. Thus far no crystalline resin acid had been obtained. Even fractional precipitation of the resin acids by means of the sparingly soluble lead salts and the decomposition of the lead salts by either hydrogen sulphide or sulphuric acid yielded no crystalline products. However, when hydrogen chloride was used to set free the acid from its lead salt a crystalline acid was obtained. This will be described later. For the present it may suffice to call attention to this modification in technique since it may be expected to yield results in other instances where the older methods have failed. It should be added that fractional distillation under diminished pressure yields not only a hard, clear resin such as has not been obtained previously from Digger's pine, but a crystalline resin acid as well.

Section on Pharmacopoeias and Formularies

Papers Presented at the Sixtieth Annual Convention

TO WHAT EXTENT SHALL POWDERED DRUGS BE RECOGNIZED IN THE NINTH REVISION OF THE PHARMACOPŒIA?

C. M. STERLING, A. B., LAWRENCE, KANSAS.

The increasing proportion of vegetable drugs which occur in the market in a ground or pulverized condition, and the ready and extensive adulteration which has been practiced in the handling of drug powders is more or less familiar to all who are interested in the revision of the Pharmacopœia. Having had access to the work of the Sub-committee on Botany and Pharmacognosy for the ninth revision of the Pharmacopœia, the writer after a somewhat detailed study of the proposed text on powdered drugs is convinced that the subject is worthy of greater consideration than it has thus far been accorded.

That our knowledge of the histology of vegetable drugs has been greatly increased during the last decade can be demonstrated readily by an examination of the present-day text-books and other works on pharmacognosy. And the marked improvement in courses in plant histology, and in the examination of powdered drugs and foods offered by our schools and colleges of pharmacy show the rapidity with which this knowledge is being disseminated. From all quarters the Committee of Revision has received recommendations that powdered drugs be recognized in the Ninth Revision of the Pharmacopœia. And various branches of the American Pharmaceutical Association, faculties of colleges, and teachers of pharmacognosy have all joined in urging a fuller recognition of drugs in powdered form. Conditions such as these indicate the need for advancement of the Pharmacopœia in this direction. That the Committee of Revision has recognized this need, and decided to give powdered drugs a conspicuous place in the forth-coming revision, is evidenced by its adoption of the "General Principles to be Observed in the Ninth Revision of the United States Pharmacopœia, as suggested by the American Pharmaceutical Association" (circular 11, page 59), from which the following references are taken:

11. Standards for Powdered Drugs.—That titles and standards be introduced for such drugs as are properly used in the ground or pulverized condition and where the standards for the whole are not applicable to the powdered drug.

13, Pharmacognostic Descriptions.—That with the description of a crude drug, brief pharmacognostic descriptions, both macroscopic and microscopic when possible, be given, also the appearance of the structural elements in the powder, when examined microscopically, as a means of detecting adulteration.

17, Powdered Drugs.—The powdered drugs to represent the entire drug.

When the drug can be powdered without residue this should be required; in other cases the allowable tailing or residue should be determined.

If we keep in mind the idea that the Pharmacopœia will become a legal standard, it is evident that many points never previously considered will present themselves for consideration, and that definitions and descriptions must be more carefully and accurately drawn than ever before. It then becomes a question of prime importance for consideration: How far can the Committee of Revision safely go in describing the structural elements of powdered drugs when examined microscopically?

Of the many recommendations which have been made to the Committee of Revision none is specific in character. The writers have for the most part contented themselves with recommending that powdered drugs be recognized, and that their descriptions "be of practical value," and expressed in "terse, accurate, and concise" language. Rarely has any one expressed, even remotely, a method of procedure.

One writer on this subject has suggested the introduction of "terse and accurate statements wherever possible and of practical value in identifying the drug or detecting adulterations"; and also "methods of preparing sections and powders, stains and micro-chemical reagents for such purposes." Another has recommended that "powdered drugs be recognized in the next revision, and that they be concisely described, certain of their elements being designated by italicization or otherwise as identifying characteristics."

All will agree, I think, with these suggestions, that the descriptions shall be "terse, accurate, and concise and used wherever of practical value"; but the question of how far the Committee shall go is an open one, and one upon which opinions may well be at variance. Shall powdered drugs remain, as they appear in the present text, merely appended to the descriptions of the whole drugs, or shall they be given more conspicuous recognition and be placed upon a footing equal with that of the whole drugs?

Let it be said, in passing, that "methods of preparing sections and powders, stains and micro-chemical reagents," have no place in the Pharmacopœia. Work of that sort may well be left to the text-books; and it cannot be expected that the Pharmacopœia shall displace the dispensatories.

It must be conceded that, as the text stands, the treatment is much more liberal than that accorded by the pharmacopœia of any other country, still it is wholly inadequate to the subject. Drug powders are not given the prominence which their importance warrants; the descriptions frequently are too brief, and they are not coordinated properly with the preceding portions of the text.

According to the present arrangement the official definition is followed by a description of the whole drug, and then appended, seemingly, as an after-thought is a description of the powder, of which no mention has been made in any part of the preceding text. When introduced in this way, the exact relation of the powder to either the definition or description of the whole drug is somewhat difficult to determine.

To illustrate the point in question let Aconite be taken as an illustration:

Aconite is defined as "the dried tuberous root of Aconitum napellus Linné (Fam. Ranunculaceae): to which may be attached the portion of the stem-base

not exceeding 2 cm. in length, and yielding," etc. It is described as "more or less conical or fusiform, 4 to 10 cm. long, 1 to 2 cm. in diameter at the crown; externally dark brown or grayish-brown, smooth or longitudinally wrinkled, the upper portion with a bud, etc.

Then follows a description of the powder: "Powder grayish-brown, with numerous spherical somewhat plano-convex, and 2 to 5 compound starch grains, the individual grains being 0.003 to 0.015 mm. in size; tracheae mostly with slit-like simple pores, sometimes with spiral or reticulate thickenings or with bordered pores," etc.

What has this description of the powder to do with either the official definition or description, which have been concerned entirely with the whole drug? Is there a proper correlation between the official definition and the description of the powder? And what standing would the powder have if it were considered as a legal standard? Let us suppose, for example, it were necessary to state that the entire root of Aconite could not be pulverized and that a certain amount of residue were allowable. Would not such a statement in connection with the powder weaken the description, and make it appear inane, or even ludicrous when the official definition had specifically included the whole root?

If drug powders are to occupy the position which their importance warrants, it is evident that some method essentially different from that of the proposed text must be adopted. There are two methods of procedure which suggest themselves.

One is to change the official definition so it will include the powder. By this plan the definition of Aconitum would read as follows: The dried tuberous, root whole or powdered, of Aconitum napellus, etc. Then after the definition would follow the description of the whole drug, and after that the description of the powder. This method, while wanting somewhat in accuracy, has the commendable merit of brevity and conciseness, and cannot be objected to on the ground that it will add materially to the text. And it can be introduced with but little change in the text already submitted by the Committee.

The other method is suggested by paragraph 11 of the "General Principles to be Observed in the Ninth Revision," which reads, "That titles and standards be introduced for such drugs as are properly used in the ground or pulverized condition and where the standards for the whole are not applicable to the powdered drug." Let this general principle be extended to include all drug powders, and have each powdered drug appear under its own separate and distinct title. Then Aconite Powder for example would appear as "Aconiti Pulvis."

It will be urged against this method that it is cumbersome and requires considerable repetition. On the other hand it has some distinct advantages which more than off-set these objections. It directs especial attention to drug powders, and puts them on an equal footing with whole drugs. By this method, definitions can be made accurate and specific, and any qualifying or limiting statements in the description may be made to harmonize perfectly with the definition. By adopting it the committee would add materially to the value of the Pharmacopœia as a book of standards, and give proper recognition to a subject of steadily increasing importance.

SUGGESTIONS RELATIVE TO STANDARDS AND METHODS OF ANALYSIS.

L. F. KEBLER, CHIEF OF DRUG DIVISION, BUREAU OF CHEMISTRY.

The work during the past few years has shown the great need of more concerted cooperative and fundamental investigations. There has been a dearth of available workers. There is a great need of studying analytical methods with a view of determining what degree of accuracy can be obtained by workers either in the same or different laboratories. The Pharmacopœia prescribes specific standards for certain drugs and indicates standards for others. In many instances these specific standards have been found wanting; for example, the standard for cannabis indica states specifically that the powder shall contain few or no stone cells, which means a virtual absence of seeds. In practice it has been found exceedingly difficult to put this standard in force for the simple reason that very few samples available on the market are free of seeds to the extent prescribed. Furthermore, information is lacking as to just what amount of seed should or should not be permitted.

Another feature is that certain of the methods do not give satisfactorily concurrent results in the hands of different workers; for example, the method prescribed for determining the alkaloidal matter in hyoscyamus is liable to a variation of 100 percent in the hands of different workers, and naturally with such a great variation as this it would be difficult to use the method to advantage. The chief difficulty with the method appears to be insufficient time and solvent to properly extract the alkaloidal material from the powdered plant. Similar difficulties of the above character can be referred to, but these are sufficient to indicate the shortcomings of certain prescribed standards.

Attention is now called to the standards that are indicated but not specifically prescribed. Such standards, for example, as to the amount of alcohol present in a finished product made according to prescribed formula, or the amount of extractive or other factor that may contribute to the value of determining the quality of the commodity. For example, the Pharmacopoeia prescribes a method for manufacturing tincture of capsicum, but no definite statement appears as to the amount of alcohol that should be present in the finished product. Neither is there any reference made as to the amount of matter that might possibly be present in a preparation made as directed by this authority. This feature is a most important one, because it is well known that alcohol (95 percent) in many instances extracts far less material than does a solvent containing more water. This feature is recognized by most manufacturers and taken advantage of.

In a paper communicated to the Association of Official Agricultural Chemists last year by Mr. Street on the subject of ginger extracts, attention was called to the fact that menstrua containing smaller amount of alcohol than that contained in the ordinary alcohol removed considerable more extractive matter than does 95 percent alcohol. The writer has conducted experiments on tincture of ginger which corroborate the findings of Mr. Street in this particular.

In this connection it might be well to call attention to the well-known fact that the examination and investigation of food and drug problems frequently

overlap each other, and if it were possible to arrive at some plan whereby the efforts of the investigators of subjects that have to a certain extent a common basis could be correlated, it certainly would be most desirable. Such a plan would eliminate so-called double standards in many instances.

Many of the present standards for crude drugs make no provisions whatever for the presence of certain incidental or accidental foreign material that is usually present in these products. In the past such foreign material has constituted a goodly percentage of the product; for example, uva ursi has been offered for import containing in excess of 40 percent of stems, foreign material, worthless leaves, etc. The excuse offered by the importer for the character of the product was that the commodity is intended to be used in the manufacture of cattle powder or veterinary remedies. Steps have been taken to reduce the percentage of such foreign material imported. In fact, certain importations have been permitted to be released only on condition that the importer would eliminate excessive amount of foreign material. An excellent example where this requirement can be put into practice is the foreign material contained in cubeb berries. There is no excuse whatever for having in cubeb berries more than 5 percent of foreign material. Such foreign material as is commonly met with in this commodity can easily be eliminated by mechanical means. Experience has furthermore shown that it will be necessary to prohibit the importation of commodities containing excessive amount of foreign material, if it is expected to supply the pharmaceutical and medical professions with agents with which to treat the unfortunate sick to the best advantage. In the past certain goods have been released on condition that they be marked, indicating the nature and character of the impurities present, but it subsequently developed that these goods were supplied on orders without indicating to the purchaser that fact that the article was not of the proper character. Such transactions frequently resulted in the second dealer finding himself in conflict with the law. Furthermore, such goods are at times shipped into interstate commerce with the proper marking on same, but after they have entered the borders of a state the original package is broken and the consuming public is at the mercy of the dealers, unless state officials come to the rescue. It is hoped, therefore, that the state officers charged with the supervision of the enforcement of the drug laws will take an active interest in these matters.

Section on Education and Legislation

Papers Presented at the Sixtieth Annual Convention

THE NEED FOR UNIFORMITY IN LAWS REGULATING THE SALE AND USE OF POISONS AND NARCOTICS.

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There are but few problems at the present time that are more deserving of immediate and careful consideration than the loss of life and health due to readily preventable acute or chronic poisoning, accidental or otherwise.

While it is true that the undermining of the health of operatives in hazardous or specially dangerous occupations is a problem that is only beginning to attract the attention of economists and sanitarians, there is even now sufficient evidence available to demonstrate that occupational diseases due to the constant ingestion of poisons or the inhalation of poisonous gases, are much more common than was formerly supposed, and are, in fact, the causative factors for an appreciable portion of the morbidity observed among the employes in various industries.

While the several chemical industries have long since been recognized as being specially hazardous, so far as occupational intoxications might be concerned, there is another phase of the poisoning problem for which the drug business as at present constituted, is largely, if not entirely responsible. This more evident phase of the problem is reflected by the number of deaths annually recorded as being due to the ingestion of poisonous substances, and by the untold hundreds, if not thousands, of lives that are annually wrecked by narcotic or habit-forming drugs other than alcohol.

While we have, as yet, no authoritative figures on the actual number of drug habitues in this country, it is generally acknowledged that the number is much larger than need be and is rapidly increasing because of the ease with which habit-forming drugs can be obtained.

This widespread use of habit-forming drugs, particularly opium, is discussed at some length in two recent messages from the President of the United States to the Senate and House of Representatives (S. Doc. 61st Congress, Nos. 377, 736), and the conditions outlined in these several messages, with other evidence that has accumulated, will, no doubt, tend to bring about the enactment of radical if not drastic laws for controlling the traffic in narcotic or habit-forming drugs of all kinds.

Just what the nature of this legislation is destined to be it would be futile to attempt to outline at this time, but of one thing we can be assured, and that is, that the problem will not be considered as being finally disposed of until it has

been solved in such a way that the sale and use of narcotic drugs is effectually controlled at every point.

Theoretically, it should be possible to control the sale and use of narcotic drugs by means of any one of a number of the laws now in force, but practically, owing to the variability of the laws on the statute books of the several states, the better laws are inoperative because of the absence of laws, or the inefficient nature of the laws in the neighboring states.

The possible influence of the variability in the requirements of the several laws is emphasized by the fact that while we find some form of cocaine legislation on the statute books of 53 of the political divisions included in the United States, only 20 of the states make it unlawful for physicians to prescribe for habitual users, and only seven states make it unlawful, for others than those specifically authorized, to have cocaine in their possession.

Forty-five of the states or political divisions have laws restricting the sale or use of opium or its derivatives, but the greater number of these laws are so burdened with provisos and exceptions as to make them almost valueless from a practical point of view.

Much the same conditions prevail in regard to the laws designed to restrict or control the sale and use of poisons other than narcotics, with the possible exception that the available mortality statistics offer additional argument to emphasize the need for enforcing existing restrictions and for elaborating or amending the present laws so as to make them both uniform and practical.

A review of the mortality statistics for 1910 shows that the number of suicides by poison, in the registration area, totaled 2456. This already large number, when augmented by 1384 deaths from accidental poisonings, other than those from occupational poisons and the inhalation of poisonous gases, gives a total of 3840 deaths largely, if not entirely, preventable by efficient laws, actively enforced.

As with the anti-narcotic laws the reason for the general laxity in the enforcement of the provisions of the laws designed to restrict the sale of poisons is to be sought in the differences that exist in the laws as they occur in the several states and the impracticability of enforcing statutes that include requirements unusual or uncommon in the laws of other states.

Some idea of the variability existing at the present time can be had from the fact that of the 54 existing laws 53 require some form of poison label, 13 require statements regarding antidotes, 45 require registration for certain poisons, 27 require that the seller satisfy himself that the buyer is aware of the poisonous character of the substance and the law of one political division, the Canal Zone, restricts the sale of all poisons, except disinfectants, to prescriptions or requisitions signed by a physician.

These differences are further emphasized by the existing variation of opinion as to what is a poison? Some 18 or more of our state laws include definitions of the term that vary from the bare statement: "Any deadly poison" to "Any drug, chemical or preparation, which according to standard works on medicine or materia medica is liable to be destructive to adult human life in quantities of 60 grains or less."

No less than 42 of the laws include a more or less comprehensive enumeration of the articles considered to be poisonous. These several schedules contain upwards of 163 titles only 23 of which occur in 20 or more of the several laws, while 36 of the titles are found in but one of the laws.

The problem is further complicated by the fact that up to the present time we have no systematic records of the frequency with which certain poisons are used or of the number of deaths attributable to any certain substance.

The seventy-third annual Report of the Registrar-General of Births, Deaths and Marriages in England and Wales includes an enumeration of the deaths from various poisons, so far as known. This list (for 1910) contains a total of 60 or more titles and is particularly interesting in that it suggests the constant variability in the nature of the poisons used and the consequent need for accurate information on the subject. Of the titles enumerated in the above list no less than eight are not found in the schedules of any of our state laws. Some at least of the articles are not ordinarily considered as being poisons. Thus the English list includes fifteen deaths from the use of veronal, ten deaths from the use of sulphonal, and five deaths from the use of camphor and is preparations indicating how difficult it is to determine what is to be considered as a poison and suggesting the desirability of safeguarding or restricting the sale of various articles from time to time.

To even the cursory students of our American poison and narcotic laws it must be evident that we are in this respect as in many others suffering from a lack of coordination or uniformity in the requirements of the several states thus making it extremely difficult if not altogether impossible to enforce the laws of one state without imposing unnecessary hardships on, or placing a premium on the ignoring of the existence of the law by the citizens of adjoining states.

Considering the multiplicity of the problems that are involved it appears to me desirable to provide for:

1. A careful comparative study of existing legislation, on the part of all who should be interested in the subject, so as to determine the reasons for the evident inefficiency of the present laws.

2. Consistent and persistent efforts to secure uniform and practical legislation in the several states so as to effectually restrict the sale and use of poisonous and habit forming drugs.

3. The compiling of accurate and reliable information in regard to substances used as poisons and the nature and kind of substances used by so-called drug-habitues.

4. The compiling of accurate information in regard to the extent of drug habituation.

5. The securing of legislation, federal or state, that will actually and effectually control the manufacture, sale and use of all drugs that are used to destroy human life or which tend to engender the habitual use of the substance to the detriment of the user.

PAST, PRESENT AND FUTURE PHARMACY LAWS.

JAMES F. FINNERAN, BOSTON, MASS.

It would be well nigh impossible for any one to cover in one short paper all the pharmacy laws that are or have been upon the books of our various states.

There are certain inconsistencies, however, between the laws of the various states that I believe should be corrected.

In my humble opinion the start must be made in our national drug organizations, and why? Because the most of us have only a limited knowledge of just what is being done in our sister states, and have not the facilities of knowing exactly what the laws are on a given subject in other states. National organizations like the A. Ph. A. have the facilities for getting this information.

It seems perfectly clear to me that boards of pharmacy should have full and complete supervision of the handling and sale of drugs.

Now in many states the collecting of samples of drugs and the analysis of the same are made by either Health Boards, Food and Dairy Commissions, etc. This is a mistake in "past legislation" under which we are working at present and should be corrected in the "future."

Many times persons are prosecuted for selling drugs below the standard, but the effect stops right there. If boards of pharmacy had the proper laws to back them up we would all sell good drugs, or not be allowed to stay in the business. Again it is generally supposed that only registered pharmacists can carry on the business of pharmacy, and I believe that is the intent of our pharmacy laws.

But what are the facts in the case? Simply this, that in practically every state, if not in all, any person can conduct a pharmacy, if he has the price, regardless of whether he is a registered pharmacist or not. He simply incorporates the business and puts a registered pharmacist in as manager. The manager supposedly has an interest in the business, but if he does, it is infinitesimal, when compared with the business as a whole. Getting right down to facts, we are going to do one of two things. Either we shall insist that registered pharmacists only may carry on the business, or continue to allow any one who pleases to conduct a pharmacy. Our duty in this matter must be perfectly clear to all.

The sale of spirituous or malt liquors by pharmacists is another matter of great importance. Shall we sell them as medicines or commodities? There are nearly as many ways of handling these goods by pharmacists as there are states.

I think you will agree with me that this part of our business should be carried on practically the same in all parts of the country. The same comment holds good in regard to the sale of poisons. Another subject of great importance is the sale of narcotics. Shall they be sold as medicines or as commodities, and under what conditions? As in the sale of liquors many states have laws governing such sales which differ greatly from their sister states.

I have mentioned the above matters so that your attention would be more closely drawn to what I have in mind in regard to the laws of the future.

It seems to me that the laws governing the sale of drugs are of vital importance to the manufacturer, wholesaler and retail dealer, for if the retailer is not suc-

cessful then assuredly the other two branches cannot be. There must be a reasonable and honest understanding between the men who carry on the various branches of our business, else there will be endless quarrels and misunderstandings. Let us all get together on this proposition and try and find common ground to work upon. Retailers understand their part of the business better than any one else, and this is equally true of the other branches.

There has been a very strong effort made during the last five years to *restrict* the sale of many articles sold by pharmacists.

I want to say right here that no honest pharmacist ever objected to restrictions that were for the public good. But there are a lot of so-called reformers, whose intentions I am willing to admit are good, who would put such restrictions on us that it would drive seventy-five percent of us out of business. These are not the sort of laws that honest pharmacists desire. What has been accomplished in the way of legislation during the last five years to enable pharmacists to carry on their business in a more lucrative manner? I will leave the answer for you to decide.

Now, what is to be done along the line of bettering our conditions as pharmacists? This question must be answered by men from all parts of the country who will study the question thoroughly and then act upon their conclusions.

In conclusion, I want to boil my remarks down to the following:

That boards of pharmacy should supervise sales of drugs in all stores, and all states should as far as possible have similar pharmacy laws.

That registered pharmacists only should be allowed to carry on the business and that the American Pharmaceutical Association should lend its purse and its influence towards uniform pharmacy laws in the various states.

THE PRICE OF PROGRESS.

The young man nowadays, if he is to make his own success, must positively instill into his efforts some new, out-of-the-ordinary, and absolutely original ways of doing things. It is true that we pay for everything that we get in some kind of coin. Everybody gets about what he deserves in the end. Soon or later every man has to pay. The price of progress resolves itself into the law of growth. And growth is not possible to any one who will not exert painstaking, aggressive, and original effort—not impulsive, spasmodic, temporary effort, but steady, firm, consistent and "thought out" effort; that kind of effort which is, by all means, economical, but highly effective. The most effective efforts are well directed only when prompted by instinct, by intuition and by knowing how, when and where to apply them in order to obtain the best results. Such efforts enable men to accomplish even seemingly impossible things.—*Western Druggist.*

Section on Practical Pharmacy and Dispensing

Papers Presented at the Sixtieth Annual Convention

PRACTICAL PHARMACY METHODS AND DEVICES.

F. W. NITARDY, PH. G., PH. C., DENVER, COL.

Before explaining the apparatus set up before you, I should like to make a few remarks in regard to manufacturing, so far as it concerns the retail druggist. For your information I will state that I am employed by the Scholtz Drug Co., which conducts a chain of retail stores in this city. We have a small laboratory devoted to manufacturing and analytical work, and I believe a few figures and notes from our records may prove of value or interest to you.

In opening, let me say that by making our own U. S. P. and N. F. preparations, which I believe druggists as a general rule do not do as much as they should, we can most effectively convince the doctor that we are pharmacists, gain and hold his confidence, and thereby aid our propaganda work in a manner that brings tangible results, results that you can count in dollars and cents.

Mr. Raubenheimer speaks a great truth in saying at the close of the paper just read: "To practice pharmacy is the pharmacist's birthright, which he must not sell, as it will end his existence."

We have given the pharmaceutical manufacturing houses too much work to do. We must do more ourselves, and you will be surprised to note the profit we can make by producing as many official and other preparations ourselves as is consistent with the conditions under which we work. I shall quote some comparative prices to illustrate my point, and for this purpose I have taken the list prices of two of the best known pharmaceutical manufacturing houses of the United States with such discounts as you can get when you are on the "jobbers' list," and can buy in quantity, in other words buy these preparations as near right as any retail establishment can possibly buy them, and compared them with the cost of these preparations to us, that is the cost of production arrived at in our laboratory.

To give you an opportunity to judge as to the correctness of what we consider cost of production, I shall give you a brief outline of how we handle our work and how we arrive at our cost figure.

Every time a preparation is made the formula is written on a card like Fig. 1.

From this the preparation is made. These cards are serially numbered and form a permanent record by being bound into monthly volumes. The cost prices of the various ingredients are filled in as the preparation is made and extended when finished. The information on this card is then transferred to a card index card like Fig. 2.

NOTE: HAVE FORMULA CHECKED BEFORE STARTING PREPARATION. CHECK OFF EACH ITEM AS USED AND FILL IN COST PRICES. MAKE ALL NECESSARY CALCULATIONS AND ALL NOTATIONS THAT MAY PROVE OF VALUE FOR FUTURE REFERENCE. ON BACK OF CARD.

THE SCHOLTZ DRUG CO., LABORATORY

Made by Powers Checked by F.W.M.

	FORMULA			COST	
✓	Calcium Hypophosphite	280	Gm.	86 lb.	.54
✓	Potassium "	140	"	116 "	.37
✓	Sodium "	140	"	.82½ lb	.52
✓	Iron "	18	"	1.73 lb.	.07
✓	Manganese "	18	"	.84 ½ lb	.07
✓	Quinine alkaloid	880	"	.37 oz	.06
✓	Strychnine "	92	"	1.20 oz	.04
✓	Sodium Citrate	30	"	.45 lb.	.03
✓	Dil. Hypophos. Acid	120	cc.	.94 lb.	.12
✓	Sugar "Conf. A"	6200	Gm.	6.00 cwt.	.96
✓	Distilled Water q.s.	8000	cc.	.10 gal.	.11
					2.89

Dissolve Fe & Mn. Hypophos. & Sod. Citrate in 240 cc. of Dist. H2O by aid of gentle heat
Dissolve Ca, K & Na Hypophos. in 3600 cc. Dist. H2O to which 40 cc. Dil. Hypophos. Acid have been added
Dissolve Quinine & Strych in 240 cc. Dist. H2O with the aid of 80 cc. Dil. Hypophos. Acid.
mix the solutions and filter.
Percolate sugar with filtrate, adding H2O q.s. 8000 cc.

Preparation: Syrup Hypophosphites Comp. U.S.P.
No. 6394 Control No. 11320 Date Nov. 13 - 1912

Fig. 1—Record Card.

THE SCHOLTZ DRUG CO. LABORATORY — PREPARATION RECORD

Syrup of Hypophosphites Compound U.S.P.

DATE	QUANTITY	RECORD NO.	TIME Hrs.	TIME Min.	COST Materials	COST Total	COST Per 1000 C.C. or Gm.	COST Per Gal. lbs.	LIST gal.	Quantity Manufactured
11/13/12	8000 cc.	6394	2		2.89	4.28	.54	2.03	2.05	1909 32000 cc.
										1910 64000 "
										1911 64000 "
										1912 88000 "
										1913
										1914
										1915

Fig. 2—Index Card.

Each preparation regularly made at our laboratory has such an index card, giving the successive dates and quantities of the preparation made, cost, etc., all of which is very valuable information and in this form at your command at a moment's notice. As a further check on our products we keep a one-ounce sample of every preparation. This sample receives a control number which is also noted on the record card and the stock container of the preparation as well as every portion of it sent out to our stores. These samples are of value also to observe changes that may occur on keeping, etc.

In arriving at the cost of a preparation we add to the cost of materials used as shown by the record card, the cost of the time necessary to make the preparation (figured at 50 cents per hour), and a further 10 percent of the total of these two items which about covers what might be termed our overhead charges. The time allowance in all cases is liberal and based on actual observation of time required to do the work. With the above explanation I believe the message in the following figures will be clear to you:

	Our Cost.	Manufacturer's Price.	
		A	B
Elixir, Ammonium Valerate, N. F., gal	$2 25	$3 30*	$2 70
Elixir, Aromatic, U. S. P., per gal	1 20	2 34	2 06
Elixir, Bismuth, N. F., per gal	1 65	3 85*	3.00
Elixir, Buchu, N. F., per gal	2 50	....	5 00
Elixir, Buchu and Pot. Acetate, N. F., per gal	2 85	....	5 00
Elixir, Cinchona, N. F., per gal	1 45	2 75*	2 63
Elixir, Digestive Comp., N. F., per gal	2 20	2 47†	2 63
Elixir, Gentian, N. F., per gal	1 90	2 47	2 63
Elixir, Gentian, Glycerinated, N. F., per gal	2 20	3 85†	3 37
Elixir, Glycerophosphates, N. F., per gal	2 30	4 40‡	5 00*
Elixir, Iron, Quinine and Strych., N. F., per gal	2 10	3 30‡	2 81
Elixir, Iron, Quinine and Strych. Phos., U. S. P., per gal.	2 20	3 30*	3 00
Elixir, Potassium Bromide, N. F., per gal	2 10	3 03	2 63
Elixir, Strychnine Valerate, N. F., per gal	1 50	....	2 63
Elixr, Terpin Hydrate, N. F., per gal	2 60	3 99*	4 31
Elixir, Terpin Hydrate and Codeine, N. F., per gal	4 75	6 60*	7 50
Elixr, Terpin Hydrate and Heroine, N. F., per gal	3 60	6 27*	6 75
Liniment, Soap, U. S. P., per pint	37	....	56
Liniment, Turpentine, Acetic, N. F., per pint	35	....	49
Mixture, Glycyrrhiza Comp., U. S. P., per gal	1 05	....	2 25
Ointment, Boric Acid, U. S. P., per lb	30	....	52
Ointment, Iodine, U. S. P., per lb	70	....	1 13
Ointment, Nutgall, U. S. P., per lb	50	....	75
Ointment, Phenol, U. S. P., per lb	25	....	60
Ointment, Rose Water, U. S. P., per lb	60	....	94
Ointment, Zinc Oxide, U. S. P., per lb	30	51	54
Ointment, Resorcin Comp., N. F., per lb	60	....	90
Powder, Antiseptic, Sol., N. F., per lb	45	....	75
Powder, Dovers, U. S. P., per lb	1 70	....	3 00
Powder, Licorice Compound, U. S. P., per lb	18	....	30
Solution, Antiseptic, U. S. P., per gal	1 10	3 40†	2 63
Solution, Antiseptic, Alk., N. F., per gal	1 50	....	2 63
Solution, Arsenic and Merc. Iod., U. S. P., per pint	25	....	41
Solution, Iron and Ammon. Acet., U. S. P. ,per pint	12	....	56
Solution, Potassium Arsenite, U. S. P., per gal	50	....	1 60
Solution, Sodium Phosphate Comp., U. S. P., per gal.	2 20	3 40†	2 70
Solution, Strychnine Acetate, N. F., per pint	35	....	45
Spirit, Ammonia, Aromatic, U. S. P., per gal	2 60	....	3 90
Spirit, Ether Compound, U. S. P., per pint	1 25	....	1 69
Spirit, Nitrous Ether, U. S. P., per gal	3 50	....	5 00
Spirit, Peppermint, U. S. P., per pint	70	....	1 20

	Our Cost.	Manufacturer's Price. A	B
Syrup, Asarum Comp., N. F., per pint	28	....	56
Syrup, Citric Acid, U. S. P., per pint	12	....	32
Syrup, Ginger, U. S. P., per pint	18	....	29
Syrup, Hypophosphites Comp., U. S. P., per gal	2 05	3 02	2 63
Syrup, Iron Iodide, U. S. P., per lb	17	33	45
Syrup, Hydriodic Acid, U. S. P., per gal	1 80	3 21	3 00
Syrup, Rhubarb and Pot. Co., N. F., per gal	2 45	4 40	3 75
Syrup, Sarsaparilla Comp., U. S. P., per gal	2 00	2 48	3 00
Syrup, Squill, U. S. P., per gal	1 30	1 93	2 10
Syrup, Tolu, U. S. P., per gal	1 00	2 34	2 25
Syrup, White Pine Comp., N. F., per gal	1 75	2 04	2 40
Syrup, Wild Cherry, U. S. P., per gal	1 35	2 34	2 10
Syrup, Yerba Santa Aromatic, N. F., per gal	1 65	3 40	3 55
Tincture, Aconite, U. S. P., per pint	38	66	68
Tincture, Aloes, U. S. P., per pint	38	61	75
Tincture, Arnica, U. S. P., per pint	27	55	52
Tincture, Belladonna, U. S. P., per pint	29	55	68
Tincture, Benzoin, U. S. P., per pint	53	96	1 09
Tincture, Cantharides, U. S. P., per pint	52	1 31	1 01
Tincture, Capsicum, U. S. P., per pint	48	86	71
Tincture, Cardamon Comp., U. S. P., per pint	32	61	56
Tincture, Cinchona, U. S. P., per pint	40	88	86
Tincture, Cudbear, N. F., per pint	25	....	38
Tincture, Digitalis, U. S. P., per pint	33	55	71
Tincture, Gentian Comp., U. S. P., per pint	34	61	54
Tincture, Ginger, U. S. P., per pint	51	88	90
Tincture, Hyoscyamus, U. S. P., per pint	37	66	75
Tincture, Iodine, U. S. P., per pint	70	1 43	1 50
Tincture, Iron Chloride, U. S. P., per pint	30	69	60
Tincture, Iron Citrochloride, U. S. P., per pint	38	....	75
Tincture, Lavender Comp., U. S. P., per pint	40	74	71
Tincture, Myrrh, U. S. P., per pint	52	96	94
Tincture, Nux Vomica, U. S. P., per pint	38	66	68
Tincture, Opium, U. S. P., per pint	1 25	2 06	3 00
Tincture, Opium Camph., U. S. P., per pint	30	80	94
Tincture, Opium Deod., U. S. P., per pint	1 35	2 06	3 00
Tincture, Rhubarb, U. S. P., per pint	50	66	86
Tincture, Rhubarb Arom., U. S. P., per pint	53	69	75
Tincture, Strammonium, U. S. P., per pint	27	55	57
Tincture, Tolu, U. S. P. ,per pint	52	....	79
Tincture, Valerian, U. S. P., per pint	40	74	71
Tincture, Vanilla, U. S. P., per pint	88	1 38	1 35
Tincture, Viburnum Opulus Comp., U. S. P., per pint	57	....	75
Vinegar, Opium, U. S. P., per pint	95	....	2 03
Vinegar, Squill, U. S. P., per pint	11	....	36
Water, Bitter Almond, U. S. P., per gal	45	....	2 25
Water, Camphor, U. S. P., per gal	45	....	2 06
Water, Cinnamon, U. S. P., per gal	40	....	2 06
Water, Peppermint, U. S. P., per gal	50	....	2 06
Wine, Antimony, U. S. P., per pint	18	44	49
Wine, Colchicum Seed, U. S. P., per pint	27	55	68
Wine, Iron, U. S. P., per pint	25	....	53

I believe the list is comprehensive enough to prove that I did not pick on a few articles that we accidentally produce cheaper than the manufacturers can sell them.

*Same drug strength but not claimed to be official.
†A preparation of similar composition to the official.
‡A preparation similar to, but weaker in its active ingredients, than the official.
Where no price is given the preparation is not listed by the manufacturer.

In all our preparations, quality not low price is our aim. We buy the best materials and spare no labor or care in producing products that we can honestly say are at least equal if not superior to the best the market affords. It would be to our advantage to make these products even if they would cost us as much as we would have to pay for the ready made article.

I should like to call your attention to another line of work handled at our laboratory which saves much time for the salesman or clerk and also stimulates and creates business.

Every drug, chemical or preparation that has any appreciable sale is put up in bottles, cartons or package form in one or more sizes according to demand. We design our package with the idea in mind that they be convenient to the con-

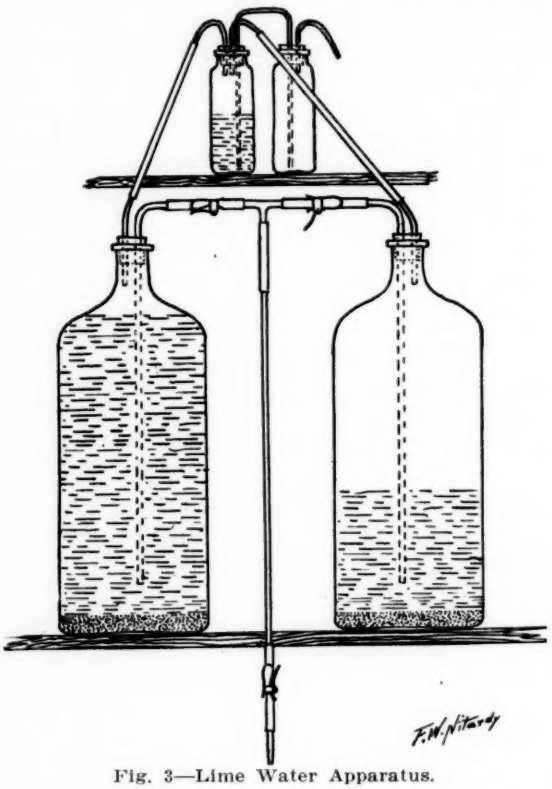

Fig. 3—Lime Water Apparatus.

sumer, preserving the unused portions, neat and attractive in appearance, but not expensive and above all bearing a label that gives such information to the consumer as he should have.

We use the term "U. S. P." or "N. F." whenever possible gradually educating the public that they mean something so far as quality is concerned.

Our records of the quantity of packages of certain articles sold during successive years show that suggesting to what use these staples can be put and giving proper directions for their use, is bringing very good results in increased business. We have more than doubled our sales on many of these articles in the last four years.

With your permission I will now explain this apparatus set up here. It is for lime water and quite simple even though it may look somewhat complicated at the first glance. We all know that lime water, no matter how carefully made, will deteriorate quickly, if exposed to air. For this reason the usual method of making lime water in one container, then decanting or filtering off the supernatant liquid into a stock bottle from which it is dispensed, is not satisfactory. It begins to deteriorate from that moment and when the last is dispensed it is little else than plain water with possibly a little chalk suspended in it.

This apparatus is intended to do away with filtering or decanting the lime water into a second container, to protect it from the action of air, and insure a continuous and plentiful supply, which will always be a strictly U. S. P. product, with a minimum expenditure of labor or trouble. The apparatus consists of two bottles of suitable size connected by means of a "T" tube with a double syphon having one outlet. The bottles are stoppered to prevent entry of air except

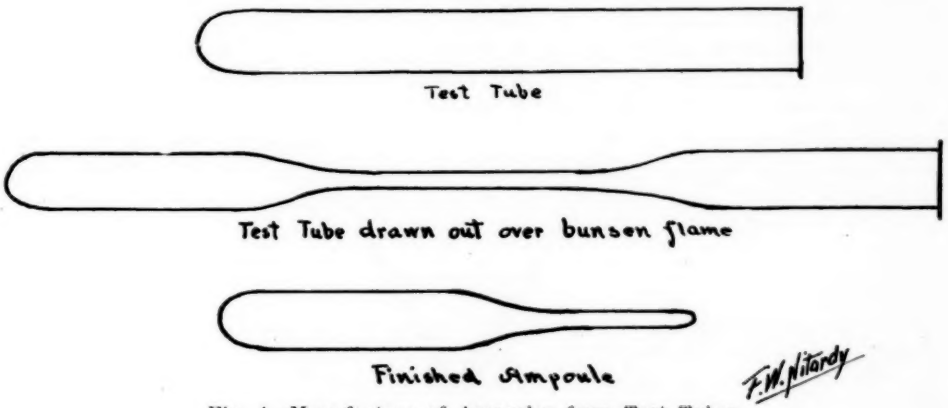

Fig. 4—Manufacture of Ampoules from Test Tubes.

through the inlet tubes bringing air from a third bottle, half filled with concentrated Potassium Hydroxide solution through which the air must bubble in entering this bottle, thereby removing the CO_2. The fourth bottle is an expansion bottle which prevents the spilling of the KOH solution in case of back pressure through change of temperature. Fig. 3.

To start the apparatus a quantity of the "Milk of Lime," hereafter described, is placed in each of the two syphon bottles. They are then filled with distilled water and allowed to settle till the supernatant liquid is clear. The syphon is then put in place, the air tubes connected, the syphon started and one of the syphon arms closed.

Lime water may now be withdrawn as needed from one bottle. When this gets nearly empty the other syphon arm is opened and the first closed, permitting the withdrawal of lime water from the second bottle, while the first is being refilled with distilled water, shaken, set back in place and allowed to settle, and so on alternately one and the other bottles are refilled without interruption of the syphon or ever being out of lime water.

The "Milk of Lime" referred to is a preparation consisting of lime slacked and washed by the U. S. P. process and bottled in semi-liquid form in well-sealed

bottles for future use. It is a great convenience and I should like to see such a product incorporated in either the U. S. P. or N. F. in the coming revision.

This display here consists of "home made" ampoules. In recent years, doctors are beginning to use sterile solutions for intravenous administrations, and the most satisfactory way of dispensing them is in a sealed glass vessel, commonly known as an ampoule. I suppose most druggists would consider it a little difficult to produce an ampoule extemporaneously, if they found they needed one, but it is quite easy. I make them out of test tubes. All you do is to clean a tube of suitable size and draw it out over a bunsen burner. After filling it is sealed and sterilized. The whole operation is quickly done and does not cost much. Fig. 4.

I also want to call your attention to a method of rapid filtration in use at our laboratory and originated by my assistant, Mr. Powers. Any liquid that will pass through paper rapidly will really filter quite slow because the paper lays close even to a ribbed funnel, not permitting the liquid to pass very rapidly. This is overcome by taking a large ribbed funnel and placing a small ribbed

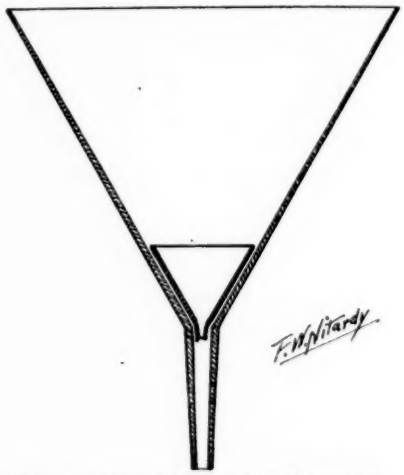

Fig. 5—Funnel for Rapid Filtration.

funnel, preferably one with the neck broken off, inside of it, thereby producing a space between the two funnels for the liquid to pass. By this method any liquid that does not clog the paper can be filtered in about one-fifth the usual time. Fig. 5.

Speaking of little tricks that save time and trouble, I want to mention our method of cleaning capsules that have been filled with a powder, such as aspirin, that has a tendency to adhere to the capsule. Shaking them in or rubbing them with a towel will not clean them. However, they are easily made bright and clean by placing them in a dish with a quantity of sodium bicarbonate, stirring and separating the sodium bicarbonate by means of a sieve, then finishing the capsules by shaking them in a towel.

One more suggestion and I shall close. Most of you have probably experienced some trouble with such preparations as Basham's Mixture, or Compound Syrup of Phosphates. I have a couple of samples of each here. This sample

of Basham's Mixture is about two months old and you notice it is in perfect condition. Here is another portion from the same batch. This is turbid, having precipitated a part of the ferric acetate in form of the insoluble basic acetate. The difference is due to the former having been kept in a refrigerator, while the latter has been kept at ordinary temperature, summer heat being sufficient to cause precipitation in this preparation.

In Comp. Syrup of Phosphates, N. F., a portion of the calcium salts will crystallize out unless kept in a cool place. Caramelization of the sugar also takes place gradually at ordinary temperature on account of the presence of considerable free acid, causing the beautiful red color to be displaced by a brownish color, which with the turbidity produced by the separation of calcium salts, makes the product very unsightly. Both can be prevented by keeping the preparation on ice. Here are two samples of this preparation from the same batch, one kept on ice and one at ordinary temperature. Note the difference! Not all druggists seem to realize the importance of keeping a preparation properly. Many a dollar, much annoyance and perchance your reputation as a pharmacist may be saved by properly protecting drugs and preparations from the influence of light, heat or air. No pharmacy should be without a refrigerator and other conveniences for proper storage of stock requiring such special care. For the proper preservation or storage of a preparation is every bit as important as its proper production in the first place.

DISCUSSION.

C. A. Mayo, of New York, led off in the discussion of Mr. Nitardy's paper, and said he had brought with him a few specimens of ampoules made from a new kind of glass. While one might be able to make them from test-tubes, it took some time to develop sufficient dexterity to do it advantageously, and ampoules could be bought quite cheaply. He had made some himself from test-tubes, and filled them with solutions of strychnine sulphate, but found there was a tendency to precipitate. This tendency was especially marked when solutions of alkaloidal salts were put up in ampoules made of very soft glass—as the ordinary lead glass. It had been found that ampoules of soft glass could not be used with any safety at all for alkaloidal solutions. There was some difficulty even with ampoules made from test tubes. But by using an especially hard glass, known as Jena No. 16, III, quite an advantage would be had. He had just received from a German manufacturer of ampoules on a large scale specimens made from a new glass which was even better and less subject to decomposition by alkaline solutions than the Jena glass, and he had brought them with him, thinking it might be interesting to the members to know that they could get these ampoules in a glass that was absolutely neutral.

He said that the Italians had probably done more with hypodermic medication than any other class of physicians. He thought the members would be surprised to find the variety of drugs the Italian physicians gave in ampoule form. Quinine, for instance; iron, quinine and strychnine—and particularly the iron salts were given hypodermically, and were dispensed in ampoules. In Greater New York there were 365 Italian pharmacists, and probably three times as many Italian physicians. Through them had been built up a large trade in ampoules, and an Italian there had gone into the manufacture and sale of ampoules, and had quite a large trade. Mr. Mayo said he had observed the method of a manufacturer in the East, who filled a good many ampoules with viscid liquors, and he said he had always found it necessary to fill them by means of a vacuum. He had been surprised to find that some of the French manufacturers used the rather tedious process of filling by means of a burette and hypodermic needle. By the vacuum method absolute sterility was

insured, whereas, if poured in through a funnel, it would be found that the capillary tube was so small that it would not run down. The way he himself accomplished it in that way was by alternately warming and cooling the ampoule.

Mr. Nitardy said that the doctor he had spoken of who ordered 500 ampoules at one time asked for a dry substance in them—sodium cacodylate. He simply poured the finely granular sodium cacodylate in the top of the test-tube, and a shake or two would bring it down into the bottom. In filling ampoules with liquid he used a piece of glass tubing that he had drawn out with a long point and graduated to the proper amount—a pipette. The long point was used to prevent the liquid from touching the sides of the neck of the ampoules. The reason the liquid should not touch the glass was that if it contained a substance which was destroyed by heat, it would char when the ampoule was sealed. His method of making ampoules was convenient for extemporaneous use when unexpected calls came, or the pharmacist was not prepared to fill such orders. If the doctor asked for a sterile solution in ampoule form, the druggist could make an ampoule on short notice, as it did not require great knack or experience. He had made the first one without any trouble. Mr. Nitardy said he knew that test-tube glass was not the best to use for a thing of that kind, and he did not mean to convey that idea, but simply to point out that it could be used in case of emergency.

Frederick T. Gordon, of Philadelphia, commenting on Mr. Mayo's remarks, suggested that, before filling the test tubes, it would be well to boil them in dilute hydrochloric acid and rinse them out with distilled water to remove the free alkali of the glass.

Mr. Mayo said he would not like this statement to go out without calling attention to the fact that European investigators had found that it was only a temporary advantage to clean them in this way, as precipitation would take place if allowed to stand long enough, as the alkali would find its way to the surface.

E. Fullerton Cook, of Philadelphia, said that Doctor Hutchins had recently suggested a device in connection with the sterilization of ampoules, the method being to sterilize the ampoule in water which was colored, and if any of the ampoules were not perfectly sealed the liquid would seep into the ampoule, and it was possible to detect that fact instantly upon taking them out of the liquid. He had also suggested the possibility of very efficient sterilization at comparatively low temperatures, because of the increased pressure brought about in the ampoule. This had not been absolutely demonstrated, but he had found that with comparatively low temperatures they were able to sterilize more successfully than would be expected at that temperature, and he accounted for it by the increased pressure in the ampoule when the liquid was heated.

Continuing, Mr. Cook said that one thing which had interested him greatly in the last few years, had been the subject of cost-accounting. Mr. Nitardy had mentioned this in connection with the prices he had given; for instance, he had taken the first cost of the material, and then the cost of labor and the loss in handling the preparation. Manufacturers who were carrying out cost-accounting and estimating the cost of material knew that there were a number of other items which must be considered. For instance, in order to put a preparation on the market, you must have a laboratory, and, unless you own the building, you must pay rent for it, as also insurance; and if salesmen were required to put the preparation on the market, that cost must go into the cost of the preparation. These "overhead" charges included every item of expense of the business, which must be considered as an item of cost of that particular preparation being priced. He agreed that the retail pharmacist could often manufacture an article more cheaply than the manufacturing houses, but nevertheless every item of cost should be considered. He had recently seen a pertinent statement bearing on this subject—an article intended to help the man who had to compete with the mail-order houses, and having nothing to do with the drug business. A man was represented as going into a hardware store and asking for a saw, and, being told that the price was seventy-five cents, produced his mail-order catalogue and said, "I can buy this for forty-five cents in Chicago." The merchant replied, "All right, I will sell it to you for forty-five cents." Then the prospective purchaser said, "Put it on my bill." But the merchant demurred to this, and said that it was only fair for him to pay cash for it, as he would have to do with the mail-order house. Then he should add to that twenty-five cents for express and

the two cents it would cost to order it. By this means, he demonstrated that the seventy-five-cent saw which the prospective buyer was going to get for fifty-five cents in Chicago would cost him in fact eighty-two cents cash instead. Not only so, but in this case the merchant claimed the right to keep the saw on his shelf for two days, as it would take the customer that long to get it from the mail-order house. Mr. Cook regarded this as a practical illustration of the working of the cost system.

Mr. Culley, speaking along the line of Mr. Cook's remarks, said he assumed that when Mr. Nitardy had named the sum of 50 cents an hour as the entire cost, that this was the price of his own salary, and did not include such overhead costs as the cost of containers, freight and delivery, and all items that went into the cost of the goods.

W. C. Anderson, of Brooklyn, said he did not think the comparison made here with reference to manufacturing houses and manufacturing retailers weakened the argument of Mr. Nitardy. The overhead expense that the manufacturer had for rent, insurance and the like was always paid by the retail druggist; he had to pay that whether he manufactured himself or bought from the large manufacturer. The time a clerk wastes in many stores could be used in manufacturing, and the 50 cents an hour added by Mr. Nitardy could, under these circumstances, be taken off the expense of these preparations. This saving would more than balance the cost of containers or anything of that kind.

Mr. Anderson, continuing, said he thought this address was a most interesting and instructive one. Time would not permit of going into the different items presented, such as lime-water and the keeping of the different preparations, but he felt that the Section was greatly indebted to the gentlemen who had presented this argument in favor of these little things that pharmacists so often forgot. Pharmacists often make a preparation properly, but never think of its keeping—never consider temperature, and other little matters that Mr. Nitardy had called attention to. The question was frequently asked why it was that the retail drug business did not pay better, and he thought it had been answered here today in a very clear and positive way. It was because the retail druggist was not saving money by manufacturing, instead of paying for the manufactured article. He not only lost in a commercial way —but he lost in experience. He also lost prestige, and lost his reputation to a great extent with the physicians. Mr. Anderson said he had nothing to say against the manufacturing houses, as they were doing a legitimate business; but the retail druggist himself was at fault in this matter, and he believed that every one of them should take to heart the facts and figures given here, because it was one of the things which would bring about the condition that all pharmacists were striving for, that of the true practice of pharmacy.

Cornelius Osseward, of Seattle, said it was refreshing to hear a paper of this kind. A few of those present might say that this would do well enough for a large store, but not for a small one; but he assured the members that it could be applied to the smallest pharmacy in the land. If, instead of standing over a show-case and reading a newspaper during business hours, the pharmacist would make his own preparations, he would find it a paying investment of time and effort. Personally, he did not think Mr. Nitardy should charge any time expense to these preparations, as it was wasted right along by the average pharmacist.

Mr. Nitardy, replying to the comments made upon his paper, said that Mr. Anderson and Mr. Osseward had already, in a way, answered the several questions asked, but he would like to state for information that the laboratory where he was engaged was run as part and parcel of the main store of the firm, and for that reason could not furnish good data as to the correct running expense, or "overhead" charge, as it was called. He paid no rent, taxes or insurance, as these went in with the expense of the main store, and he did not know what part to apportion to them. However, he had tried to allow for all of these in a way, though it was but a guess. He was satisfied that he had come very close to them, as he had watched the conditions closely. He thought the time he had allowed was liberal. The time necessary for cleaning of dishes and such things as that was also considered. They made some things in somewhat larger quantity than the ordinary store would make them, and in that way cut the cost down a little. But he was satisfied that the figures he had given would come very close to being the actual cost of production, everything considered, for the average druggist. If anything, it would fall below the figures quoted.

Mr. Cook, speaking again on this subject, said he had not intended to raise any question as to the value of the figures given, but simply wished to call the attention of the retail druggists to the fact that for absolute accuracy in cost of materials he must estimate the cost of items which were not spoken of here. Notwithstanding the fact that he would have his room anyhow, and would probably be hanging over the counter and reading the newspaper, if he was to get at the absolute cost of these things he must take into consideration the items which entered into that cost. In the case just cited, where the laboratory was part of the main store, and paid for out of the rent of the store, it was only proper that the laboratory should be divided off into square feet and pay its fair proportion of that charge. The same rule applied to labor and the like. It was at last only a matter of bookkeeping, to get accurate results. While the retail druggists of the country were not considering this question of actual cost, the large manufacturer was making it a big feature of his business, and had fixed his selling price on the actual cost of his products, and not the supposed cost.

Mr. Mayo, recurring to the subject of ampoules, said that the method of testing the sealing of ampoules by boiling in a colored solution did not originate with Doctor Hutchins. This method had been originated by von Boyesen, a German. Mr. Cook, he had supposed, had seen him use this method some three or four years ago at the Philadelphia College of Pharmacy. The method was described in the Proceedings of the American Pharmaceutical Association at the Los Angeles meeting.

THE ALCOHOL CONTENT OF THE BLOOD.

Schweisheimer carried out a series of experiments on total abstainers, moderate drinkers and drunkards. He found an extremely small percentage of alcohol in normal blood, .029 to .036 percent. Alcohol passes directly into the blood as such, and in the blood of a drunken man may reach as high as 2.26 percent. On taking a given amount, a higher percentage is found in the blood of a non-drinker than of a drinker. In the non-drinker the highest alcohol content is reached after one and a half to two hours; it remains at this level for a considerable time (five hours, as contrasted with two hours in drinkers) and falls slowly. In drinkers it rises and falls quickly, the entire time required for elimination being about half as long as in non-drinkers. The psychic signs of drunkenness run parallel with the concentration of the alcohol in the blood. The hypersensitiveness of epileptics to alcohol is probably due to the fact that they are unable to oxidize the alcohol and thus an abnormally high percentage of it passes into the blood. This determination of the alcohol content of the blood may be used clinically to differentiate between unconsciousness from alcohol and other causes, such as uremia, opium, trauma, etc. Tables and curves are given showing in detail the results of the experiments.—*Journ. A. M. A., Vol LX. p.* 704.

Section on Historical Pharmacy

Papers Presented at the Sixtieth Annual Convention

REMINISCENCES OF PHARMACY IN THE ROCKIES.

JOHN BEST, CENTRAL CITY, COLO.

As one of the pioneer pharmacists of this state I have been asked to tell something of the conditions of pharmacy in the early days when Colorado was on the fringe of civilization. This I take pleasure in doing, but I must warn you that there is little excitement in my experiences; in fact I had more excitement in New York City before I came to Colorado than I ever had here. That was the time of the "draft riots" in New York in 1863 when we had to board up the windows of the drug store where I was then employed for protection against riotous mobs. I never have had to board up a drug store in Colorado.

My early experience in the drug business was in New York. I graduated from the New York College of Pharmacy in 1865, and like many other young men of that time took Horace Greeley's advice and "went West," settling down in Central City, Colo., in 1866, and opening a drug store there. Central City at that time was the largest city in Colorado, Denver being only a small town, deriving its population and prosperity from the rich mining region of which it was the center. At that date our city boasted of six drug stores, all prosperous and friendly, and all conducted by educated pharmacists. There were then only three drug stores in Denver.

We had no price cutting then. Most of our trade was strictly professional, there being comparatively few patent medicines sold, and such as we carried sold at an average of 50 percent over the regular prices in the East. Hostetter's Bitters, Ayers, Hood's, Schenck's and other old time proprietary remedies were in good demand, Ayer's especially, I being the first general agent for Ayer's goods in the Rocky Mountain country. Strange to say, perfumery was very popular and I sold vast quantities of Lubin's extracts and soaps, the favorite brand, at one dollar per bottle or cake. Hair oil was another great favorite and I reaped an honest profit by dispensing lard oil perfumed with bergamot, under the popular name of "Bear's Oil," at 25 cents an ounce. Much of my business, as with other druggists then, was the supplying of chemicals used in the mining industry, quicksilver being one of the principal items. Most of these chemicals were obtained from St. Louis, that being the headquarters of the overland shipping trade.

The mention of quicksilver reminds me of one exciting experience. I had in 1873, when Central City was almost wiped out by a fire that destroyed most of the stores and houses there, in stock twenty-three tanks, or flasks, of quicksilver, and as these were very valuable, I made special efforts to save them from de-

struction, so we risked cremation and managed to get out twenty-two tanks and dumped them in a deep well nearby. Later I had these tanks rescued, it being necessary for me to call on some expert mining workmen, so deep was the well. This is the only instance I can recall in the history of mining for precious metals in Colorado when mercury was mined from a well. The twenty-third tank—note the number—had to be left in the store, and after the fire was over, everything burnable being burned up, I found it apparently unharmed in the ruins of my store, but on closer examination the tank was found to be absolutely empty, the intense heat of the fire opening the seams of the iron container and literally boiling off the quicksilver in vapor through these openings.

In those days druggists were compelled to buy or order staple drugs and chemicals in large quantities because of the length of time required for shipment and the high freight charges. In making up my orders on the wholesale firms supplying this territory I would order a quantity of each article sufficient to last me for six months or a year, for when the stock of any article was sold out it was out, generally for some months. We Colorado druggists also had to be very careful in timing our orders to prevent damage to goods by climatic changes in transit. Thus, every preparation that would freeze at low temperatures had to be ordered far enough ahead of the time of delivery so that it would be in transit over the plains and mountains during the summer season, this often requiring three or four months. It was customary to send in our principal orders twice a year, so that shipments could be made at the most advantageous time. We had even then both fast freight and ordinary freight classification and, of course, appropriate charges. The "fast freight" had mules for motive power and the average time was three months between Colorado and eastern cities and the cost of fast freight shipments being 22 cents a pound. Ordinary shipments and heavy drugs and chemicals came to us by ox teams, and six months was the usual time between the sending of an order and the receipt of the goods. This class of freight cost 10 cents a pound, everything in those days being reduced to pounds instead of tons.

In those days goods were shipped in bulk and often several druggists would combine their orders so as to secure original bulk packages and thus cheaper freight charges. Naturally we made most of our galenicals, it being cheaper to buy the crude drugs and alcohol, and make them, than to pay freight on finished products. Another factor was the cost of packages. Everything shipped by the old-time freight wagons had to be as compact as possible and packed in containers not liable to breakage. Usually we had little trouble from deterioration of goods during their long transit across the continent, as shippers understood conditions and packed goods to meet the strenuous conditions of overland or water shipment. Some things, though, did give trouble, especially pills, the old-fashioned proprietary kind.

These, you know, were not protected by sugar or gelatin coating, so in spite of liberal dusting with licorice powder, we would frequently find boxes of pills in which the heat, etc., had caused the pills to become soft, and adhere in a mass. I believe I sold the first sugar-coated pills introduced in this territory, Ayer's Liver Pills, the price of which was 50 cents a box, and no trading stamps.

Business was done mostly on a cash basis. There was very little barter, the

only business of that character being done with the Indians of nearby villages who used to offer furs, etc., in trade for their wants. To the Indians we sold large quantities of perfumery (but very little soap), and patent medicines, especially the kind that had a very bitter or strong taste. I had to disappoint an eastern friend who once asked me how I used to estimate prices by weighing the rough gold offered by miners for goods, by telling him I never estimated—Colorado folks had real money and plenty of it even in early days. Conditions were not so rough nor were we so uncivilized as people of eastern states imagine, and except for the neccessary crudities of a new country and our isolation by distance from pharmaceutical manufacturing centers, the drug business was pretty much the same as is still found in small country villages.

We had our share of Indian warfare when the Utes went on the warpath, in 1866 to 1867, when Colorado was practically cut off from all communication with the eastern states for months, but except for the isolation and inability to replenish stocks we druggists suffered little.

As eastern members no doubt observed while passing through the state, Colorado has few native plants used medicinally. Mountain sage is probably the most important native drug and the first shipment of this drug commercially, by the way, was made by me to Parke, Davis & Co. This plant is believed to possess valuable properties by the Indians and it has been used since the early pioneer days for treatment of what we call "mountain fever." The native drugs upon which Colorado's early prosperity was based were handled by druggists only in small quantities. I refer to gold and silver, so we had to depend on our skill as pharmacists and use foreign drugs to collect even the small amounts of these native drugs we handled.

There are so many things that seem commonplace to the pioneer which are wonders to the novice that I hestitate in offering even these brief reminiscences. I have no "wild and woolly west" experiences that I can recall, so I trust that members will pardon my lack of exciting incidents. Just one final word, we Colorado druggists have always been pharmacists in the true sense of this term, and I know our successors, the younger men, will uphold our traditions.

SOME OLD-TIME BROOKLYN DRUG STORES.

THOMAS D. MCELHENIE, PH. G., BROOKLYN, N. Y.

In 1796 appeared the first directory of Brooklyn, which was really only a sort of appendix to the New York directory. No druggist is named in this volume but there appears the name of John N. Barbarie, Physician, on Main Road, probably Fulton street, and very likely this country doctor handed out medicines.

In 1799 a German apothecary named Kempe or Kempff opened a drug store in the village. The location is in doubt but was probably in the vicinity of Fulton or South Ferry. This business was succeeded to by the son of the founder and in 1860 the second Mr. Kempe was succeeded by his nephew, Mr. Louis Lehn,

who will be recalled by many here present as the founder of the jobbing house of Lehn and Fink. Mr. Lehn is now living in Germany. In 1873 he sold the retail store to two young men—Henry Syvarth and Chas. F. Schleussner. The store was then and for many years before at 125 Atlantic avenue. In 1890 it was moved to 84 Court street, and after two or three short term changes in 1896 Mr. Thomas Lamb became the owner and still continues.

In 1825 Spooner's Directory of Brooklyn names two druggists, Isaac Kipp, 63 Fulton street, and John V. E. Vanderdoef, 108 Fulton street. These establishments have passed out of existence with no lineal successors that I can learn about.

In 1830 there came to Brooklyn from Ireland one Dr. Brice who established a small surgery or drug store doing a prescribing and dispensing business. The store was in James street, near York, for many years, and when the anchorage for the first bridge was to be built James street was wiped out. The doctor's son, Israel B. Brice, who had grown up in the business and succeeded to it, moved to 73-75 Fulton street, where he remained for many years. Mr. Brice sold to his clerk, Mr. Geo. H. Norfolk, who grew grey in the shop, but kept up the old sign, "I. B. Brice." The business is now located at 115 Fulton street under the style "Hoyt Drug Co."

In 1834 one William Bailey started a drug store at Fulton and Sands streets. It was in some ways a branch of a London wholesale house, Bailey & Co. In 1846 a young Canadian named John Worthington came in as a clerk and afterwards bought the store from Mr. Bailey for $4,000. For several years after the Civil War the profit averaged $5,000 a year. In 1849 the store was destroyed by fire and the second store at Fulton and Pineapple was burned out in 1861. The third store at 162 Fulton street is still in existence, known for fifty years as "Apothecaries Hall." It is now owned by the son Arthur, a member of the American Pharmaceutical Association. On a recent call he showed me some interesting relics of old times. A copy of the second year's price list of Dr. Squibb in 1859 partly printed and partly written, the latter being recent additions. There were only two fluidextracts listed. The old gentleman died only three or four months ago at the ripe age of 87, as the result of an injury by an automobile near his home some weeks earlier. But for this he would be hale and hearty now and my cherished plan for a talk with him would be carried out and many points of interest brought out.

Forty years ago or more—date is uncertain—there was a drug store kept by a Dr. Geo. B. Irish, between Brice's and the ferry, probably about 37 or 39 Fulton street. A feature of this store was Root Beer. About 1875 or 1876, Dr. Irish sold to his brother-in-law, Mr. Philo Jackson, who moved it up to 511 Fulton street, now the shopping center of Brooklyn, and later moved it still further up Fulton street.

About 1874 Mr. Jackson established the first drug store on Coney Island. Mr. Albert Chambers has carried it on for thirty years on the same spot in larger premises and he owns the buildings and the ground, a most unusual circumstance on that stretch of sand. Viewed as sand it is only useful for scouring tinware, but lying where it does it is worth all kinds of money.

Coming on up Fulton street at the corner of Clinton, is the impersonal store of the Riker-Hegeman Co., which dates back forty years and more, when Davies & Leys carried on a fine apothecary shop there. Many veterans in the trade will recall Leys' Nipple Wash. This store was the source of it. A long block further up, at the corner of Pierrepont street, was Cyrus Pyle's store, a fine shop in the seventies or a little earlier. Mr. Pyle took on at one time a green boy from Hudson, N. Y., named Lithgow T. Perkins. He told Sam, his darkey porter: "Sam, show this boy how to clean up things." Sam took him back to the sink and said: "There's the soap, there's the water and here are the dirty bottles. Now pitch in." He gave him no further instructions, but the boy made good and became known among the foremost pharmacists of his city and state—President of Kings County Pharmaceutical Society and for years Secretary of the Kings County Board of Pharmacy. After some years with Mr. Pyle, his employer opened a branch store away uptown at Greene avenue and Cumberland street, placing Mr. Perkins in charge, with the result that Mr. Perkins bought it out and carried it on until he sold in 1898 to Albert E. Marsland, one of Brooklyn's rising young men in pharmacy, who was brought up in my store, spending with me as boy, clerk and partner about eighteen years. His widow still owns the business, having as manager another of my old boys, Mr. I. W. Price. The Perkins store has always been a notable prescription store and headquarters for doctors.

To slip back down Fulton street a few doors above Mr. Pyle's and across the way, about 1862 there was opened by Mr. Isaac D. Smith a store in a small triangle at the junction of Fulton, Washington and Court streets and Myrtle avenue, where about all the cars in the city passed. In 1865 this store was sold to Mr. Chas. W. Kitchen who inaugurated the first "Always Open" drug store. He sold in 1884 to Mr. Morrissey, who is now at No. 6 Myrtle avenue. During Mr. Kitchen's time he opened at the new Brighton Beach hotel, at Coney Island, a very showy branch store in a pavilion built to suit an enormous soda fountain which had been built by Jas. W. Tufts for a show piece at the Centennial.

Coming along up Fulton street we come next to what is now a saloon but was for many years the drug store of Wm. H. Douglas, who was first in the employ for some years of a Dr. C. Prince who started it about 1851. A few blocks further on at the corner of Bond and Fulton, now a part of the department store of Loeser Co., was the drug store of Wm. Wynne, opened about 1846 by a Mr. Atwater, sold to Mr. Wynne in 1861, and now at 44 Flatbush avenue. The business is now owned by Mr. James Vinnicombe.

At the corner of Washington and Sand streets stood for many years the store of Dr. Henry J. Menninger, started about 1865, which was wiped out by the building of the bridge and moved two or three blocks north to the corner of Jay and Sands, and again moved by the building of the Manhattan bridge, going part way back to No. 61 Sands street. The business belongs to the widow of Karl Behrens, now Mrs. Harper. Mr. Behrens was a clerk for Dr. Menninger for several years.

In this neighborhood is the store of Mr. Geo. S. Bentley, at Adams and Nassau since 1880. He moved there from Pearl and Nassau, where he had begun in

1871, having bought the business from a Dr. Chas. Cranmer, who had succeeded some years before a Dr. King of New York.

For a long jump we will travel out to 3rd avenue and 17th street, where is located a handsome new building, with Hogan's drug store in the corner and apartments upstairs. The whole belongs to one Hogan, an Irish physician. It was started in 1847 by a Dr. Williams, who carried drugs and hardware for some years and sold to Edward Buckley about 1860 the drug part of the shop. In 1870 he sold to W. E. Strachan—and he to W. S. Doe, who is stated to be the real original inventor of the carbon filament incandescent light, doing his experimental work in the celler of this old rookery drug store, where it was seen by somebody else. He sold to the present owner.

At 3rd avenue and 21st street was another drug and hardware shop of Mr. Godfrey at about the period of Dr. Williams spoken of above. These two stores had a large trade from the farming section stretching out to the south, right out to Fort Hamilton and Bensonhurst, having no store nearer.

About 1869 Mr. Wm. H. Douglas, heretofore mentioned, opened out in Flatbush the first drug store in that section, which had the village and farm trade all about as far as Coney Island. During 1875 the writer was in charge of this store, leaving in the spring of 1876 to engage on his own account in his present store, which was started in 1869 by a man named Kennedy. This is the shop jocularly referred to by some of the craft when they tell inquirers for drawing papers, etc., "Oh, you can get it down at that funny drug store near the Pratt Institute."

Away over in Williamsburg, or Eastern District, at 690 and 692 Grand street, stands the handsome and completely fitted store of R. C. Knipe & Son. It was built by Mr. R. C. Knipe in 1870 and has always been a popular store in a thickly populated section.

In 1848 Mr. C. M. Wright opened a drug store at the corner of Sackett and Columbia streets, with only a capital of $300. This was the first drug store south of Atlantic avenue.

In 1851 he moved to Union and Columbia streets, which is one of the corporation stores today. As there were a great many Germans in the neighborhood, Mr. Wright, an American, was compelled to keep a German clerk and also to study German himself, which in time he mastered so well that old German customers frequently asked him from which part of the "Vaterland" he came.

Alexander Hudnut about this time opened a drug store on Court street, opposite Warren street. Mr. Hudnut later moved to the Herald Building, 205 Broadway, New York City, where he did a very prosperous business and also realized his desire *"to snap his fingers at the doctors,"* meaning that he did not have to depend upon the physicians for business.

In 1874 a row of houses was built on Fulton street (the old Brooklyn and Jamaica turnpike) between Verona Place and Marcy avenue, in the old Bedford village, now known as the Bedford Section. The neighborhood of the so-called "Bedford Corners" up to that time was a farming district occupied by Betts' farm. Barnum's circus used to put up its tents in this vicinity, and the Brooklyn boys and girls used to go skating on a flooded meadow nearby, called the Capi-

toline grounds. In 1874 Mr. C. M. Wright and his son, Frank F. Wright, as the firm of C. M. Wright & Son, opened a drug store in the new building at the corner of Fulton street and Verona Place. This store, on account of being fitted up so elegantly with plate glass windows, black walnut fixtures, marble floor, French plate glass showcases, etc., became known as the "Palace Drug Store." This, by the way, was the first store in Brooklyn which later had such a luxury as a metal ceiling. In 1876 the store went into the possession of Dr. Watts, and Mr. C. M. Wright opened the store at Gates and Reid avenues in 1877, which in 1879 became the property of his son, Frank F. Wright, who is now at Brooklyn and Atlantic avenues.

After the death of Dr. Watts the "Palace Drug Store" became the property of Thomas Jones, an English "pharmaceutical chemist," who also owned the drug store at Fulton street and Classon avenue and at Bedford and Gates avenues. After Mr. Jones' death the store changed hands several times, until it came into possession of Otto Raubenheimer, the Chairman of the Historical Section of the American Pharmaceutical Association and former President of the New York Branch, who turned it into an ethical pharmacy, with a sign in one of the show windows: "No Cigars, No Candy, No Ice Cream, No Soda Water, But I Do Sell Pure Drugs and Medicines."

There is a dear old lady living near my store who was brought as a bride to a new drug store just being opened by her proud young husband at Myrtle avenue and Fleet Place about February 1, 1851—sixty-one years ago, and she still owns the business. She is Mrs. R. G. Rutherford. Although now past four score, she attends quite regularly the meetings of the N. Y. State Association, where she is greatly esteemed. She has told me that in the old days there were detached houses with garden plots all about. Now it is largely a negro population in old rookeries.

There are many more long established stores of excellent repute in Brooklyn, but the subject grows on one when starting in to write about it and has already outgrown reasonable limits. Perhaps another year we may take it up again.

EARLY MINNESOTA PHARMACY[1]

AN INTERVIEW WITH MR. S. W. MELENDY, ONE OF THE PIONEER MINNEAPOLIS PHARMACISTS. F. J. WULLING, MINNEAPOLIS, MINN.

Mr. Melendy came from Dane county, Wisconsin, to Minneapolis in the spring of 1871. The population of Minneapolis at that time was about 13,000. His first position was that of clerk with the firm of Lyman & Williams, wholesale and retail, located in Center Block near Second street, the heart of the business district at that time. He was with them from the spring of 1871 until 1873, when he went into the retail business with Mr. George R. Lyman

[1]Read at the Joint Meeting of the Northwestern Branch A. Ph. A. and the Minnesota State Pharmaceutical Association, at Winona, Minn., June, 1912.

under the firm name of Melendy & Lyman. They were located under the Nicollet hotel on Washington avenue. They remained there until 1877, when they moved to 241 Nicollet avenue and with others inaugurated the trend of business up Nicollet. Fifteen years later the firm moved to 421 Nicollet. In 1874 Mr. Melendy and family moved to what was then near the suburbs of Minneapolis at 37 Seventh Street South, where they resided until May, 1904. About one and a half years after moving to 421 Nicollet avenue, the firm Melendy & Lyman went out of business by selling out stock, fixtures, etc.

Among the first drug stores in Minneapolis were those owned by the following: Gray Bros., Hennepin avenue below 2nd street, now carried on by Horace Gray, son of T. K. Gray, in the same location as that occupied by the firm in 1855; George Huhn, on Hennepin avenue below 2nd street, later moved to Nicollet avenue, just below 2nd street; Savory & Johnson, corner of Washington and Hennepin avenues, before that under the Nicollet hotel on Washington avenue; James Murrison, Merchants block on Washington avenue, corner of 2nd avenue south (then Helen street); Webster Benner, in the Cataract House, corner of 6th avenue south and Washington avenue; James Slemmons, on Nicollet avenue below Washington; Thomas Gardiner, one of the old-timers, on Nicollet, now on Hennepin near 8th street; Lyman & Williams, wholesale and retail, in Center block, running through from Hennepin to Nicollet avenues—the original firm name of the latter was Lyman & Tucker. Mr. Nelson Williams bought out Mr. Henry Tucker; later Geo. R. Lyman bought out Mr. Williams; later Mr. T. W. Lyman entered into partnership with Geo. R. Lyman under the firm name of Lyman Brothers. About 1876, Mr. J. C. Eliel came from Chicago, Ill., and bought into the firm and the firm became known as the Lyman-Eliel Drug Co., and recently was absorbed by the Minneapolis Drug Co.—Crossman & Plumer, corner 2nd street and Nicollet avenue; Hofflin & Thompson, corner Washington and 1st avenue south, at a little later date.

State Association. A local association was organized in St. Paul by the St. Paul pharmacists in 1883. Minneapolis also organized a local association at about this time. St. Paul was the larger city at that time, and it was the St. Paul pharmacists who first conceived the idea of organizing a state association. A meeting was held and Mr. Sweeney was elected president. A delegation was sent to Mr. Melendy to ask him whether he would accept the position of first vice-president. This he did. Mr. H. G. Webster was third vice-president, and Mr. S. L. Crocker, of Fairbault, second vice-president. Mr. Stierle was treasurer and W. S. Getty, secretary. The association was organized October 16, 1883, over Lambie & Bethune's drug store, corner 3rd and Wabasha streets, St. Paul, and the constitution and by-laws adopted at that time. A local druggists' association of Minneapolis sent a delegation to the local association at St. Paul and a conference was held. A state meeting was called to discuss the subject of a state law regulating the practice of pharmacy. Mr. Melendy suggested that this proposed state law emanate from the state association. This first meeting was held in 1885 in the Board of Trade rooms, St. Paul. A committee was appointed, at the first meeting, to introduce a pharmacy regulatory law—the law was passed by the legislature at the first introduction.

Board of Pharmacy. At the 1885 special meeting, March 7, of the state association, a committee was appointed to select fifteen names out of which five were chosen to constitute the State Board of Pharmacy. The names of the five selected by the association were submitted to the governor of the state, and were appointed by the governor to serve on the Board of Pharmacy, respectively, from one to five years.

College of Pharmacy. In 1886 Mr. Melendy, in his presidential address, advocated the establishment of a college of pharmacy in connection with the University of Minnesota. The matter was placed in the hands of a College of Pharmacy Committee, appointed at the 1886 meeting of the association. The Legislative Committee of the state association assisted all they could in getting the appropriation of $5000 for the College of Pharmacy in 1891. President Northrop also assisted very materially in obtaining the appropriation. The committee, among whom were Messrs. Melendy and Webster, of Minneapolis, and Messrs. Frost and J. P. Allen, of St. Paul, held several conferences with President Northrop, of the University of Minnesota, and ex-Governor Pillsbury, a member of the Board of Regents of the University of Minnesota. At one time, in order to see President Northrop, the committee attended chapel exercises and had seats on the stage—conference with President Northrop afterward. President Northrop was very anxious to have a college of pharmacy organized. The basis of Mr. Melendy's reputation as the father of the College of Pharmacy rests largely with the work he did with ex-Governor Pillsbury with a view toward establishing the college. Mr. Melendy and Mr. H. G. Webster kept after things, never letting up, until they accomplished their purpose.

Mr. T. F. Stark, of Minneapolis, also was instrumental in establishing the college and worked hard with the rest. The following named men were among the early workers in whatever appertained to the College of Pharmacy prior and subsequently to 1883: Crocker, of Fairbault; Max Wirth, Duluth; Henning, Stillwater; Dr. C. Weschke, of New Ulm; H. G. Webster, R. A. Becker, of St. Paul; W. C. Calbraith, G. A. Gotwald, D. D. Lambie, S. R. McMasters, B. Zimmerman, A. P. Wilkes, A. J. Wampler, S. H. Reeves, R. O. Sweeney, Karl Simmons, of St. Paul; J. R. Hofflin, Geo. Huhn, W. K. Hicks, T. F. Stark, of Minneapolis; G. Hargesheimer, of Rochester; J. R. Jones, of Mankato; W. D. King, of Stillwater; Dr. J. C. R. Kellam, of Heron Lake.

Practice of Pharmacy in Minneapolis Before the Law Went into Effect. The drug business in the early seventies had the reputation of being a money maker. Many put money into drugs only because it was thought there was great profit in them. This led to low standards in pharmacy and stimulated those who were pharmacists to act in regard to the passage of the law. In New York and several eastern states they were passing laws and those who could not get into business in the East came West. All patent medicines sold for the price marked on the container. There was no haggling or dickering over prices at that time, and customers paid whatever prices were asked for sundries, etc. No department stores at that time. Prescription business was fair, but many physicians carried saddle-bags and furnished their own medicines. Not many proprietaries or patents were prescribed at that time by physicians. Not much soda water

was dispensed and mineral waters were sold by the bottle. Some druggists carried cigars, but not all. Mr. Melendy did not. Caswell & Hazzard, of New York, furnished Mr. Melendy all elixirs, and Thayer & Tilden furnished him with such fluidextracts as he did not prepare himself. Messrs. Melendy & Lyman was one of the first firms to put in a line of Squibb's standardized fluidextracts. The first Squibb's Fluidextract of Belladonna that Mr. Melendy dispensed was in a prescription of Dr. C. G. Goodrich for the Reverend Sample, of the Westminster Presbyterian church. The prescription called for F. E. Belladonna in a three-ounce mixture. It was dispensed on Saturday, the Rev. Sample taking a dose Saturday evening and another Sunday morning. By the time the Reverend was ready to read the Bible at the morning service, the effect of the belladonna upon the eye had become sufficiently pronounced to make it impossible for him to read the scriptural passages. This was one of the earliest testimonials for Squibb's standard fluidextracts. It appears that neither the physician nor the patient expected any such effect from the belladonna.

CAPSULE FOR TESTING GASTRIC ACIDITY.

Opitz has been much pleased with the accuracy and reliability of the information derived from congo and litmus paper enclosed in an oval rubber capsule about 1.5 cm. long by 0.5 cm. wide, studded with perforations and made in two parts which screw together. A silk thread is fastened to one end of the capsule, and a nickel ring is enclosed with the two scraps of paper to add weight. To prevent any interference from the saliva, the capsule is loosely wrapped in a wafer and is placed far back on the tongue so that it is swallowed at the first movement of deglutition. After a given time it is drawn out by the string, unscrewed, and the change of tint in the test papers compared with a color scale. By this means it is possible to estimate the amount of free hydrochloric acid in the stomach at a given moment after the test breakfast, although of course this simple method will never take the place of the more accurate determination by means of the stomach tube.—*Journ. A. M. A., Vol. LX, p.* 634.

Contributed and Selected

COMPARATIVE INVESTIGATION OF THE COMPOSITION OF ICHTHYOL-AMMONIUM AND SOME OF ITS SUBSTITUTES.*

H. BECKURTS AND H. FRERICHS.

Ichthyol-ammonium, also known as Ichthyol, is the well-known water-soluble, organic sulphur preparation of the firm Cordes, Hermanni & Co. in Hamburg. For more than 25 years it has proven a very valuable medicinal agent and it therefore need not seem surprising that during the past years a number of similar preparations have been placed upon the market, which have been advertised as "equally as effective as Ichthyol" by their manufacturers. Chemical analyses by different experts have however shown that these products, which to all appearances resemble the original, differ considerably among themselves, and particularly from Ichthyol in chemical composition.

Both physicians and pharmacists have recently complained of increased substitution of original preparations by inferior products. The following investigations were therefore conducted with a view of determining if specimens of Ichthyol obtained from different pharmacies are of uniform composition and if the better known similar preparations sufficiently resemble Ichthyol to be regarded as available, from the pharmaceutical point of view, for purposes of substitution.

Several articles have already appeared which deal with the character and composition of the preparations in question. The authors point out that the chemical analysis can only comprise the determination of the dried residue and the content of ammonium sulphate, the total ammonium and the total sulphur, since the composition of these preparations is not uniform. We are dealing with the watery solution of the ammonium salts of organic sulpho-acids, sulphones, ammonium sulphate, and small amounts of hydrocarbons poor in sulphur, which are chiefly responsible for the characteristic odor of Ichthyol.

A short resumé of previous analyses is in place. The values obtained for total sulphur are not directly comparable since the methods of Carius will frequently give too low values with preparations rich in sulphur, such as Ichthyol. The amount of sulphur combined as sulphide or not oxidized cannot be determined directly since no reliable method is at our disposal. It will be necessary to determine the amount of sulphur occurring in the form of sulpho-compounds and as sulphates and to subtract both from the total amount of sulphur present. It follows that the values obtained for sulphur occurring as sulphide are also not directly comparable.

Kothmeyer[1] determined the difference between Ichthyolum germanicum (Ichthyolammonium of Cordes, Hermanni & Co. of Hamburg) and the substitute

*Translated in full from Arch. d. Pharmacie, 1912, No. 6 and 7. From the Pharmaceutical Institute of the "Herzoglichen Technischen Hochschule" in Braunschweig.

Ichthyolum austriaucum (of G. Heli & Co. in Troppau, now called Petrosulfol). The German preparation (dried at 100°) yields 45% dried residue, and 21.1% of this was total sulphur. Petrosulfol yields 42-43% dry residue, with 16.3% total sulphur.

Goliner[2] states that the dry residue obtained from Isarol contains 17 to 19% sulphur.

G. J. Witol[3] investigated Petrosulfol and obtained a dry residue of 54.71%, with 16.27% sulphur.

R. Thal[4] carefully studied the following preparations: 1. Ichthyol of the firm Cordes, Hermanni & Co. of Hamburg; 2. Ammonium sulphoichthyolicum (now called Isarol), of the Gesellschaft fuer chemische Industrie of Basel; 3. Trasulfan of Riechold & Co. in Binningen (Switzerland); and Ammonium sulfoichthyolicum (now termed Piscarol) of Luedy & Co. in Burgdorf (Switzerland).

The author obtained the following percentages:

	1	2	3	4
Dry Residue	55.66	54.48	37.71	39.83
Total Ammonia	3.15	5.11	1.38	3.32
Total Sulphur	9.70	9.42	5.30	5.75
Ammonium Sulphate	5.72	12.94	1.93	8.05
In the organic dried substance there was:				
Ammonia	3.36	4.28	2.48	3.93
Total Sulphur	17.68	15.14	13.66	11.95
Sulphur was found:				
As Sulpho Compound	6.32	8.04	4.66	7.38
As Sulphide	11.36	7.10	9.00	4.57
Proportion of sulphonic to sulphidic sulphur:	1:1.79	1:0.88	1:1.93	1:0.62

H. v. Hayek[5] compared the composition of Ichthyol with that of Ichthynat, manufactured by von Heyden in Radebeul. The following is the result of his examination of three samples of Ichthyol and one of Ichthynat "Heyden:"

	Ichthyol I	Ichthyol II	Ichthyol III	Ichthynat "Heyden"
Dry Residue	52.69 53.06	62.13 62.51	55.21 54.98	53.89 53.93
Ammonium Sulphate	5.94 6.07	6.77 6.92	6.27 5.86	5.94 6.49
Total Ammonia	2.97 3.02 2.98	3.46 3.64 3.89	2.98 2.99 3.12	3.48 3.33 3.58
Total Sulphur (determined from dry residue)	17.19 17.47	16.35 16.07	17.01 16.39	16.05 16.15
Oxidized Sulphur (determined from dry residue)	4.89 5.19	5.55 4.93	4.77 4.99	4.70 4.57
Non-oxidized active Sulphur (determined from dry residue)	12.29	10.97	11.82	11.46

The same author[6] also reports upon the analysis of seven samples of Ichthyol of Cordes, Hermanni & Co. in Hamburg obtained in different cities in original packages:

ICHTHYOL.

No.	1	2	3	4	5	6	7	Greatest Difference
Dry Residue	54.20	54.09	53.37	53.16	51.70	54.96	53.49	3.26
Ammonia	2.93	2.97	2.97	2.97	3.02	3.00	3.11	0.18
Ammonium Sulphate	5.85	5.84	5.90	5.87	5.95	5.73	5.92	0.22
In percentages of dry residue:								
Total Sulphur	17.89	18.09	17.55	17.38	15.58	16.46	16.25	2.51
Oxidized Sulphur	3.66	3.94	4.16	3.95	4.04	3.77	4.09	0.50
Non-oxidized Sulphur	14.23	14.15	13.39	13.43	11.54	12.69	12.16	2.69

The author concludes that Ichthyol varies considerably in composition, probably owing to the nature of the raw material but that the fluctuations are within reasonable limits. The Ichthyol Company, Cordes, Hermanni & Co.,[7] replies that the fluctuations are in reality not so marked as found by v. Hayek.

F. W. Passmore[8] has studied the composition of a large number of organic sulphur preparations which have been recommended in the place of Ichthyol. He publishes the following percentages:

	Dry Residue at 100°	Total Ammonia	Total Sulphur	Ammonium Sulphates	Ammonium Chloride	Organic Dry Residue	Total Sulphur (in Organic Dry Residue)	Sulphide Sulphur in Organic Dry Residue
Ichthyol	55.7	3.16	10.72	5.94	0.03	49.73	18.66	12.51
Ichthynat ...	53.5	3.53	8.24	6.60	0.04	46.86	14.19	6.85
Ichtosan	53.9	2.74	8.24	1.69	0.30	51.91	15.08	6.70
Isarol	54.3	2.82	8.67	2.76	0.07	51.47	15.54	7.82
Lithyol	50.8	4.50	7.57	10.35	1.23	39.22	12.90	4.07
Petrosulfol .	60.7	2.54	10.07	trace	0.27	60.43	16.66	9.11
Piscarol	50.7	3.75	7.82	9.28	trace	41.42	13.44	7.27
Fossilol	51.9	3.15	8.57	5.65	0.09	46.16	15.60	8.67
Subitol	47.9	3.33	8.05	7.63	0.16	40.11	15.46	9.08

Our own analyses were made on seven samples of Ichthyol obtained from different pharmacies and the following substitutes (obtained in original packages of 0.5 or 0.25 kg.):

1. Ichthammon of F. Reichelt, limited, in Breslau.
2. Ichthium of the Factory Westend in Charlottenburg.
3. Ichthynat of von Heyden in Radebeul.
4. Isarol of the Gesellschaft fuer chemische Industrie in Basel.
5. Petrosulfol of G. Hell & Co. in Troppau and Vienna.
6. Pisciol of Hoeckert & Michalowsky, Berlin-Rixdorf.
7. Subitol of Charles Zimmermann & Co., in London.

We determined the dry residue, the sulphur occurring as sulphate, the total sulphur, the total ammonia, and the residue remaining after incineration, according to the methods described below.

The sulphates were estimated as ammonium sulphate. The ammonia occurring as ammonium sulphate was subtracted from the total ammonia and the sulphur present as sulpho-compounds was estimated from the rest as advised by R. Thal[9]. The percentage of sulphides was then found by subtracting the amount of sulphur occurring as sulphates and as sulpho-compounds from the total sulphur.

The following three tables give the values found. Table 1 refers to the substance directly; table II to the dry residue and table III to the dry residue minus the ammonium sulphate (organic dry residue).

The determination of the dry residue was effected by heating about 5 Gm. of the preparation in a water-drying oven until the loss of weight after several hours drying did not exceed 0.2 percent. It was not considered desirable to heat to constant weight because on drying, other volatile compounds besides water are gradually driven off.

TABLE I.

In Percentages:		Dry Residue	Total Sulphur	Sulphur as Sulphate	Sulphonic Sulphur	Sulphidic Sulphur	Total Ammonia	Ammonium Sulphate	Ash
Ichthyol of Cordes, Hermanni & Co. obtained from different pharmacies	No. 1.....	56.84	11.27	1.515	2.65	7.105	3.02	6.25	0.074
	No. 2.....	55.86	10.91	1.451	2.71	6.749	2.98	5.98	0.07
	No. 3.....	55.98	11.055	1.50	2.69	6.865	3.02	6.19	0.07
	No. 4.....	53.99	10.74	1.45	2.66	6.63	2.955	5.98	0.06
	No. 5.....	55.53	10.855	1.511	2.54	6.804	2.95	6.23	0.05
	No. 6.....	56.16	11.02	1.48	2.71	6.83	3.01	6.10	0.05
	No. 7.....	56.16	11.32	1.465	2.76	7.095	3.02	6.01	0.06
Ichthammon "Reichelt"..		54.80	10.375	0.355	3.96	6.06	2.48	1.46	0.08
Ichthium		51.86	8.08	1.537	5.04	1.503	4.31	6.34	0.188
Ichthynat		55.41	8.13	1.743	2.917	3.47	3.40	7.19	0.19
Isarol		52.24	7.49	1.251	2.98	3.259	2.915	5.16	0.08
Petrosulfol		57.45	9.22	trace	4.56	4.66	2.42	traces	0.236
Pisciol (a).....		51.10	8.04	0.925	4.18	2.935	3.21	3.82	....
Pisciol (b).....		52.70	8.33	0.97	4.25	3.11	3.29	4.00	....
Subitol		54.35	8.43	1.35	3.14	3.94	3.10	5.57	0.09

TABLE II.

In percentages of dry residue:		Total Sulphur	Sulphur as Sulphate	Sulphonic Sulphur	Sulphidic Sulphur	Total Ammonia	Ammonium Sulphate
Ichthyol of Cordes, Hermanni & Co. obtained from different pharmacies	No. 1	19.83	2.67	4.66	12.50	5.31	11.01
	No. 2	19.53	2.60	4.85	12.08	5.33	10.72
	No. 3	19.74	2.68	4.80	12.26	5.43	11.06
	No. 4	19.90	2.69	4.93	12.28	5.47	11.10
	No. 5	19.55	2.72	4.58	12.24	5.31	11.22
	No. 6	19.62	2.64	4.82	12.16	5.36	10.89
	No. 7	20.15	2.61	4.91	12.63	5.38	10.77
Ichthammon	"Reichelt"	18.93	0.65	7.22	11.06	4.53	2.67
Ichthium		15.58	2.96	9.72	2.90	8.31	12.22
Ichthynat		14.67	3.15	5.26	6.26	6.14	12.79
Isarol		14.35	2.40	5.70	6.25	5.58	9.88
Petrosulfol		16.05	traces	7.94	8.11	4.21	traces
Pisciol (a)		15.73	1.81	8.18	5.74	6.28	7.48
Pisciol (b)		15.80	1.84	8.06	5.90	6.24	7.59
Subitol		15.51	2.48	5.78	7.25	5.70	10.25

TABLE III.

In percentages of organic dry residue:		Total Sulphur	Sulphonic Sulphur	Sulphidic Sulphur
Ichthyol of Cordes, Hermanni & Co. obtained from different pharmacies	No. 1	19.28	5.24	14.04
	No. 2	18.96	5.43	13.53
	No. 3	19.18	5.40	13.78
	No. 4	19.36	5.55	13.81
	No. 5	18.95	5.16	13.79
	No. 6	19.06	5.41	13.65
	No. 7	19.66	5.50	14.16
Ichthammon	"Reichelt"	18.78	7.42	11.36
Ichthium		14.38	11.07	3.31
Ichthynat		13.21	6.03	7.18
Isarol		13.26	6.32	6.94
Petrosulfol		16.05	7.94	8.11
Pisciol (mean of a and b)		15.08	8.78	6.30
Subitol		14.52	6.44	8.08

The determination of total sulphur in organic sulphur preparations according to the method of Carius presents difficulties since heating the substance in sealed tubes under pressure at 300° for several hours will not always suffice for complete oxidation. This is particularly the case where much sulphur is present as in Ichthyol. W. Hinterskirch[10] has obtained reliable results with this method only when he employed less than 0.3 of the preparation or if, after releasing the pressure and again sealing the tube, the heating was repeated for several hours on the following day. The method of Carius is laborious and long-winded and requires a furnace. Hinterskirch (l. c.) has therefore recommended a method thoroughly tested by him, and involving the use of sodium peroxide as oxidizing agent. The authors, however, find that oxidation with pure sodium peroxide is accompanied by violent explosions, while if potassium carbonate is used as diluent, considerable sulphur may be lost. The amount of water present also plays a role. Definite proportions must therefore be used, and the heating must be conducted in a special way, else the results will not agree with those obtained by the method of Carius.

The method of Hinterskirch therefore hardly presents advantages over the method of Carius. It is not easy to carry out, hence that a chemist not an expert is not apt to get accurate results.

The following experiments were carried out to discover a practical method. At first, the substance to be investigated was fused with sodium carbonate and saltpeter in a tube sealed at one end. About 0.8 grammes Ichthyol were dried in the drying chamber at about 100° with 5 grammes of a mixture of 1 part saltpeter and 7 parts anhydrous sodium carbonate. The dried mass was thoroughly rubbed up with the soda-saltpeter mixture and then filled into a tube of potash glass, sealed at one end. Traces of Ichthyol remaining in the dish were removed by further portions of the mixture until the tube contained about 40 grammes in all. The tube was then heated, beginning at the open end, in a combustion furnace up

to red heat. The escape of bluish vapors with peculiar odor could not be avoided. After cooling, the tube was broken and its contents dissolved in water. The solution was acidified with hydrochloric acid and evaporated to dryness to allow of the separation of silicic acid. The residue was taken up with hot water containing hydrochloric acid. In the filtrate, the sulphuric acid was precipitated in the usual way as barium sulphate. The figures obtained, however, were too low, hence this method was not considered suitable for the determination of sulphur in Ichthyol. It is probable that during the heating, volatile sulphur compounds escape undecomposed. The oxidation of the sulphur in a closed tube is therefore a more reliable procedure.

The reason why the determination of the total sulphur according to the method of Carius often gives too low figures is probably to be explained by the fact that the sulpho-acids will to a certain degree resist oxidation with nitric acid. Hinterskirch (l. c.) found that the results will be too low by 1.5 to 2% even if the heating is continued for several hours at 300°. In order to convert all the sulphur contained in Ichthyol into sulphuric acid, the following method was employed: About 0.3 to 0.5 gramme Ichthyol was heated with about 4 cc. fuming nitric acid for about 9 hours in a sealed tube. The temperature was slowly raised up to 260 to 275 and kept there about 6 hours. After opening the tube, the fluid was washed into a porcelain dish, rendered alkaline with 8 grammes sodium carbonate, and evaporated to dryness. The dried mass was then placed in a large nickel crucible with tightly fitting cover. The crucible is fitted into the opening of an asbestos plate held in a slanting position, so as to avoid the effect of the gas during heating. The crucible is heated with a moderately sized flame until the mass is uniformly molten. After cooling, the contents of the crucible are dissolved in water and acidified with hydrochloric acid. The sulphuric acid was then determined in the usual way as barium sulphate. The following figures were obtained with one sample Ichthyol by this method:

0.4360 g substance gave 0.3525 g $BaSO_4$, equals 11.14% S.
0.3560 g substance gave 0.2825 g $BaSO_4$, equals 10.90% S.

With a second sample:

0.3450 g substance gave 0.2675 g $BaSO_4$, equals 10.65% S.

When the preparation was oxidized according to Carius and the sulphuric acid precipitated directly in the usual way, the following figures were obtained with the same samples:

SAMPLE I.

0.3895 g substance gave 0.3155 g $BaSO_4$, equals 11.12% S.
0.3240 g substance gave 0.2595 g $BaSO_4$, equals 10.99% S.

SAMPLE II.

0.3250 g substance gave 0.2540 g $BaSO_4$, equals 10.74% S.

The same method was employed in determining the sulphur in the following preparations: Ichthium, Ichthynat, Isarol and Subitol, with the following results:

	After oxidation with nitric acid, evaporated with sodium carbonate and fused	Directly precipitated after oxidation with nitric acid.
Ichthium	7.92%	8.06%, 8.08%
Ichthynat	8.03%, 7.96%	8.13%
Isarol	7.45%, 7.48%	7.49%
Subitol	8.40%	8.46%

It follows that the method of Carius is very serviceable in determining the total amount of Sulphur in Ichthyol and similar organic sulphur preparations if 0.3 to 0.5 g. of the substance are heated with about 4 cc. fuming nitric acid for about 9 hours up to 260° to 275°.

Double determinations of the amount of total sulphur in other samples of Ichthyol and its substitutes gave figures which agreed very well, thus 10.92 and 10.90%, 10.84 and 10.87%, 11.37 and 11.27%, 9.50 and 9.47%. This is another proof of the value of the Carius method.

When the substance was heated in the tube up to 300° almost all the tubes cracked. In the few cases where the high pressure was resisted, the amount of sulphur was not found any higher. A temperature of 300° is therefore not necessary. A temperature of 260° to 275° will suffice if the heating is continued for 9 hours and at least 4 cc. fuming nitric acid are employed.

The method of Thal may also be used in determining the total sulphur; it has the advantage of not requiring a furnace. About 1 gm. Ichthyol is evaporated twice with 20 cc. fuming nitric acid each time. The syrupy residue is then mixed with 5 grams of a mixture of 4 parts anhydrous sodium carbonate and 3 parts saltpeter and fused. The solution of the fused mass is acidulated with hydrochloric acid and evaporated to dryness so as to separate off the silicic acid. In the filtrate of the solution of the residue, the sulphuric acid is determined in the usual way. The following figures were obtained for Ichthyol No. 3, a nickel crucible being used:

0.7850 g substance gave 0.6245 g $BaSO_4$, equals 10.93% S.
0.8995 g substance gave 0.7080 g $BaSO_4$, equals 10.81% S.
0.9360 g substance gave 0.7395 g $BaSO_4$, equals 10.85% S.

With the method of Carius, 11.055% S were found. The figures obtained thus agree fairly well with those of the method of Carius. The following modification is however recommended since there often will be slight explosion if care is not exercised in heating the residue which has been oxidized with nitric acid, with the sodium carbonate and saltpeter. This is due to the presence of large amounts of not yet oxidized organic matter. It is thus possible that portions of the fused mass may be lost by being ejected from the crucible.

"About 0.5 gm. Ichthyol is evaporated three times with 10 cc. fuming nitric acid each time, and the thick residue is rubbed up with 5 gm. of a mixture of 4 parts anhydrous sodium carbonate and 3 parts saltpeter. As much as possible of this mass is transferred into a capacious nickel crucible, and a few drops of water are used to wash out all remnants from the dish. After drying, the mass is carefully fused. The fused mass is taken up with hot water and filtered. The filtrate is then acidulated with hydrochloric acid and the sulphuric acid precipitated in the usual way as barium sulphate."

The following figures were obtained:

0.4455 g Ichthyol No. 3 gave 0.3600 g $BaSO_4$, equals 11.10% S.

With the method of Carius an average of 11.055% was obtained.

The amount of sulphur occuring as sulphate could easily be determined by the method of Thal (l. c.). In this sulphoichthyolic acid is precipitated by the addition of fresh white of egg and concentrated hydrochloric acid; the sulphuric acid present in the filtrate is then determined without heating with chloride of barium. Not more than 4 gm. of the preparation are dissolved in about 300 cc. of water. The white of a medium-sized egg, stirred up in about 100 cc. water is then added, and finally 5 cc. 25% hydrochloric acid with enough water to make 500 cc. After shaking, the whole is filtered. The sulphuric acid is determined without heating in 200 cc. of the filtrate by weighing as barium sulphate in the usual manner.

The amount of sulphonic sulphur present could only be determined as suggested by Thal (l. c.). Thal deducts the ammonia occurring as ammonium sulphate from the total ammonia. In the remainder, the sulphonic sulphur is calculated by allowing 17 parts of ammonia to 32 sulphur.

There is no practical method for determining the sulphonic sulphur directly. v. Hayek[11] recommends the following procedure for determining the total oxidized sulphur (sulphur occurring as sulphate and as sulpho-compounds): The solution of Ichthyol is acidulated slightly with hydrochloric acid and then precipitated with barium chloride. After having been washed, the precipitate is heated to red heat. According to this author, the sulphoichthyolic acid is precipitated quantitatively as barium sulphoichthyolate. The amount of barium sulphate remaining after heating is supposed to correspond to the oxidized sulphur occurring as sulphate and as sulpho-compounds.

The following experiments will show that the conclusions of v. Hayek are not correct and that only part of the sulphonic sulphur can be weighed in this way as barium sulphate. If organic sulpho-acids are heated under pressure with hydrochloric acid, the sulpho-acid group will be converted more or less completely into sulphuric acid. 1 gm. Ichthyol No. 3 was heated under pressure for some time up to 200° to 210° with 5 cc. fuming hydrochloric acid and 10 cc. water in a sealed tube. The contents of the tube were then diluted with water and filtered. In the filtrate, the sulphuric acid was then precipitated in the usual way as barium sulphate. Depending upon the length of time of heating, the following results were obtained:

on heating for six hours:

1.1300 g Ichthyol gave 0.3260 g $BaSO_4$, equals 3.95% S.
0.8270 g Ichthyol gave 0.2410 g $BaSO_4$, equals 4.00% S.

on heating for twelve hours:

1.1630 g Ichthyol gave 0.3400 g $BaSO_4$, equals 4.01% S.

If the amount of sulphur occurring as sulphate (Ichthyol No. 3 contains 1.5% sulphate sulphur) is subtracted, this would leave 2.5% sulphonic sulphur if the separation of the sulpho-acid group occurs quantitatively.

With Petrosulfol, which only contains sulphates in traces, the following figures were obtained on heating for six hours:

0.9957 g substance gave 0.2245 g $BaSO_4$, equals 3.1% S.

Since sulphates are almost completely absent, the sulphur found by this method in Petrosulfol must occur as sulpho-compound.

By the method of determining oxidized sulphur according to v. Hayek the following figures were obtained for both preparations:

ICHTHYOL No. 3.

0.6219 g substance gave 0.0915 g $BaSO_4$, equals 2.02% S.
0.6219 g substance gave 0.0955 g $BaSO_4$, equals 2.11% S.
The average is 2.065% S.

PETROSULFOL.

0.7451 g substance gave 0.0605 g $BaSO_4$, equals 1.12% S.
0.7451 g substance gave 0.0615 g $BaSO_4$, equals 1.14% S.
The average is 1.13% S.

The amount of sulphonic sulphur can be determined by the following calculation: The amount of sulphur found in the form of sulphate is subtracted from the above results and the remainder multiplied by 2, since one atom of barium corresponds to two atoms of sulphur (as sulpho-acid). With Ichthyol 3 we get the following figures: 2.065—1.5=0.565x2=1.13%; with Petrosulfol: 1.13x2 =2.26% sulphonic sulphur. These amounts are considerably lower than those

obtained by us by decomposition with hydrochloric acid. Further experiments showed that sulphonic sulphur cannot always be completely converted into sulphuric acid, and the results often lack uniformity. The above experiments show that Ichthyol contains at least 2.5% sulphur in the form of sulpho-compounds and Petrosulfol at least 3.1%. The real figures are probably still higher since, according to Thal's calculation from the amount of ammonia present, 2.69 and 4.56% will be obtained.

It follows that the figures published by v. Hayek[12] for the amount of oxidized sulphur in Ichthyol and Ichthynat must be too low.

It has been shown by further experiments that the decomposition of the sulpho-acids present in organic sulphur preparations is not complete if the substance is heated with hydrochloric acid to 200° to 210°. With Ichthyol I and Ichthium, results agreeing fairly well when calculated from the ammonia content were obtained:

	Decomposition with Hydrochloric Acid	Determined from the Ammonia Content
Ichthyol I.....	2.560 resp. 2.450%	2.65%
Ichthium	5.083 resp. 4.903%	5.04%

In the remaining experiments, the results obtained were however considerably lower. When two determinations were made, they did not agree sufficiently. In the case of Subitol, less sulphuric acid was found after heating with hydrochloric acid than by the direct method by the addition of egg albumin and hydrochloric acid. The reason for this could not be determined. From all this it follows that the sulphur combined as sulpho-compounds cannot be recovered quantitatively as sulphuric acid by heating with hydrochloric acid to 200° to 210°. It is therefore necessary that the amount be calculated from the ammonia content.

In order to determine the amount of sulphur present as sulphide, the amount corresponding to sulphates and sulpho-compounds must be subtracted from the total sulphur. A direct method has not yet been discovered.

The total ammonia is determined by distillation as follows: 5 gm. of the preparation are dissolved in about 150 cc. water and distilled after the addition of 10 cc. 50% soda lye and a few granules of zinc. With the aid of a cooler, the distillate is caught in N/2 hydrochloric acid. The excess of acid is titrated with N/2 soda lye, methyl orange being used as indicator. The same figures were obtained where duplicate determinations were made.

The ash was determined by incinerating 5 gm. of the preparation in a platinum crucible at a dull red heat, in every instance, the ash had a brownish red color and consisted chiefly of ferric oxide.

If the analyses of the different preparations be compared, it will be found that uniform figures were obtained with the different samples of Ichthyol except for the amount of dry residue (as high as 2.85% difference, probably to be explained by a loss of water by evaporation after the bottle has been opened in the pharmacies). The greatest variation calculated for dry residue was: For total sulphur, 0.6%; for sulphate sulphur, 0.12%; for sulphonic sulphur, 0.35%; for sulphidic sulphur, 0.55%; for the total ammonia, 0.16%, and for ammonium sulphate 0.50%. Greater uniformity in the preparation of so complex a substance is hardly possible.

Differences in the analyses of various samples of Ichthyol as reported by v. Hayek were not confirmed by us. Inasmuch, as the figures obtained by v. Hayek

for total ammonia and ammonium sulphate agreed among themselves and with our values, it is not likely that the difference in the contents of total sulphur and hence also in sulphidic sulphur will really be so marked as this author states (2.51 and 2.69%). It is more logical to assume that the author's estimation of total sulphur in the sulphur-rich Ichthyol has always and to a varying degree been too low.

The fact that the Ichthyol substitutes vary so much in their composition among each other and also as compared with Ichthyol is probably to be explained by the use of crude oils differing in composition and containing only small amounts of sulphur as sulphides. The action of all these preparations undoubtedly depends upon their content of sulphides. Unna has given special attention to the study of Ichthyol as a water-soluble, organic sulphur preparation. When he first recommended Ichthyol therapeutically he drew attention to the fact that the preparation possesses characteristic properties, and that these are due to the large amounts of sulphur in firm chemical union found in the crude Seefeld oil, and which occur in the finished product chiefly as sulphides.

Whether the processes to which the oil are subjected play an important role is less easy to answer. The present patent concerning the separation of sulphoichthyolic acid does not give us sufficient information. Since, however, the substitutes differ so considerably from the original preparation, it seems likely that the special methods of manufacturing these preparations are also of some importance.

From the stand-point of both the physician and the pharmacist it is therefore proper that each preparation should have its distinctive name (Ichthammon, Ichthium, Ichthynat, Isarol, etc.) Our experiments have shown such variations in composition that it would be improper to designate these substitutes "Ichthyol" or "Ammonium ichthyolate," or to regard them as identical with the original Ichthyol.

Ichthyol is a very popular remedy and it would seem but proper to add it to the list of drugs official in the Pharmacopoeia. On the other hand, the preparation cannot be so characterized that its identity and uniformity will always be assured. The description of the Italian Pharmacopoeia, edition 1902, and of the British Pharmaceutical Codex, edition 1911, will not suffice to properly identify so complex a drug. The Italian Pharmacopoeia requires neither a qualitative nor a quantitative analysis of sulphur, and the British Pharmaceutical Codex merely states that an oil containing about 10% sulphur is furnished by the bituminous slate. Our investigations have however shown that the amount of sulphur and the way in which it is chemically combined varies with each preparation. In view of the inadequate directions for testing these preparations it is therefore improper to regard them as identical.

(1) Wien. klin. Rundschau, 1898.
(2) Therap. Monatshfte, 1903, 151
(3) Pharmaceut. Zentralh., 1904, 198
(4) Apoth. Ztg., 1906, 431.
(5) Wien. klin. Rundsch., 1907, Nos. 7 and 8.
(6) Pharm. Ztg., 1907, p. 952.
(7) Pharm. Ztg., 1907, p. 994.
(8) Midland Drugg. and Pharm. Rev., 1910, 44, 154.
(9) Apoth. Ztg., 1904, 431.
(10) Zeitsch. analyt. chem., 1907, 241.
(11) Wien. klin. Rundschau, 1907, Nos. 7 and 8.
(12) Wien. klin. Rundschau, 1907, Nos. 7 and 8, and Pharm. Ztg., 1907, 952.

HYDROGEN PEROXIDE SOLUTIONS.*

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Having noticed that the retail prices of different commercial brands of hydrogen peroxide varied a great deal, and, knowing that department stores and five and ten-cent establishments gave druggists considerable annoyance by selling certain brands at a ridiculously low price, I determined to investigate the different brands on the market, and I also did some experimental work to determine the best condition for keeping this product and to determine the rate of deterioration when kept under unfavorable conditions. My assistant, Mr. Fisher, and myself have conducted a series of experiments to determine this and have assayed samples from a number of different commercial brands, and this paper has to deal with the results of these experiments and assays.

It might be in order at this time to give a very brief history of the introduction of hydrogen peroxide to the world of medicine, and to note the causes for its rapid rise in importance as a medicinal agent, and as a useful commercial article.

The history of hydrogen peroxide is that of a chemical curiosity rapidly becoming so useful that it can be found in nearly every household, and so important that we have come to feel that it is next to impossible to get along without it.

In 1818 Thenard, a French chemist, first discovered hydrogen peroxide by treating barium peroxide with hydrochloric acid. The barium peroxide was made by heating barium oxide to a high temperature in air. The energy given to the barium oxide by the heat was transferred to a molecule of water, and instead of remaining H_2O it became H_2O_2. It has been prepared in a pure state by two methods, freezing and distillation under reduced pressure. In the pure state it is a thick, clear, colorless liquid of specific gravity about 1.5. This liquid is quite dangerous in that a number of things may cause it to explode and lose its excess of oxygen with violence. Even particles of dust have done this, and many severe explosions have occurred in laboratories where it was prepared.

The product that we are familiar with is far from dangerous, as we usually obtain it in about 3 percent solution in water, and in this condition it loses all its explosive force, while it still retains its antiseptic properties.

Hydrogen peroxide may be prepared in several ways, but the most common method of preparation is that of treating a metallic peroxide with an acid. Barium peroxide is used probably more than any other metallic peroxide. A number of acids have been used for this purpose, as sulphuric, hydrofluoric, hydrofluosilicic, all of which give insoluble precipitates with barium. We can readily see how the last two acids would be objectionable in the preparation of a medicinal hydrogen peroxide, as the solution might contain fluorine, but in the hydrogen peroxides used in bleaching, these methods are very satisfactory, as any fluorine they may contain will increase the efficiency of the bleaching properties of the solution. In the method given in the Pharmacopoeia of 1890, phos-

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phoric acid was used, but this acid is very expensive and the Pharmacopoeia of 1900 did not specify any method, therefore it can be made in any way the manufacturer sees fit to use, provided it corresponds to the tests given in the Pharmacopoeia.

Not all metallic peroxides will give this reaction when treated with an acid, e. g., manganese dioxide, when treated with hydrochloric acid, gives manganese chloride and free chlorine; sodium peroxide, treated with an acid, usually gives a salt of that acid, water, and free oxygen. However, if small amounts of sodium peroxide are added to a weak solution of hydrochloric acid, hydrogen peroxide is formed. This may be a possible explanation of the method used in preparing the cheaper peroxides, as nearly all of them contain sodium and chlorides, and it may be that a commercial sodium peroxide is used in their manufacture.

The importance of hydrogen peroxide is due to its power as an antiseptic and bleaching agent, which in turn is due to its strong oxidizing properties, it decomposing into water and nascent oxygen, the nascent oxygen being the antiseptic and bleacher. It has long been known that a strong oxidizing agent is a good antiseptic, the oxygen destroying the germs by oxidizing them. Chlorine, bromine and potassium permanganate have all been used for this purpose, but hydrogen peroxide has nearly displaced them, as it is a safer and more convenient agent to use.

When hydrogen peroxide comes in contact with blood, pus, or decayed tissue, there is an effervescence due to the exudation that is taking place. This effervescence is especially marked when hydrogen peroxide comes in contact with blood. This has led many people who are not familiar with it to feel that hydrogen peroxide is a dangerous solution. I have known laboring men, using this solution to dress wounds on the limbs of their horses, to rush quickly for soap and water and remove the excess of the solution, fearing that they would be injured by it. I suppose this was due to the fact that they were familiar with phenol, bichloride of mercury, etc., and knew that they were dangerous, and reasoning by analogy, thought that any agent that would cause such an effervescence, must be most powerful and therefore dangerous. The fact that it is not dangerous and is yet a powerful antiseptic explains its great use.

No solution of hydrogen peroxide is valuable unless it will retain its strength, and of two samples, both of which are pharmacopoeial, the one that will retain its oxidizing power the longer, is the one that pharmacists should recommend. A number of solutions of hydrogen peroxide do not retain this power and the manufacturers find it necessary to add something to preserve them. It has long been known that this solution is more stable in an acid solution than in an alkaline or neutral solution, therefore all solutions are acid in reaction. The U. S. P. limits the amount of acid that may be used, and no solution is pharmacopoeial that requires more than 2.5 cc. of N/10 potassium hydroxide to neutralize 25 cc. of the solution. It is surprising to find that many of them have a higher acid content than is allowed by the U. S. P. By accident it was found that acentanilid would aid in preserving these solutions. A chemist was attempting to form a combination between acetanilid and hydrogen peroxide and was unsuccessful in this attempt, but noticed that the sample containing acetanilid retained its strength much longer. This was a trade secret for years, but now it is known to all and nearly

all manufacturers use it as a preservative, usually of the strength of 3/16 gr. per fluid ounce. The chemistry of the action of acetanilid in this connection is not understood, and it stands out as one of the things that men have learned experimentally and that chemists are not yet able to explain. The small amount of acetanilid used has no injurious effect and adds wonderfully in preserving the solution. Some claim that the acetanilid acts as an antiseptic, but I do not believe that this has been proven. We have on the market today a number of brands of hydrogen peroxide that do not use acetanilid to preserve them, and yet they do not deteriorate more rapidly than do solutions that do not contain acetanilid, therefore it seems that acetanilid is not always necessary to preserve this solution.

First, I wish to call your attention to the chart showing the results of keeping this solution under different conditions.

Considering the first two results, it is made plain that a solution kept in a bottle stoppered by cotton retains its strength much better than when contained in a bottle stoppered with cork. You will note that this is true in a number of cases shown on this chart. In some cases the solution gained in strength. I think that the explanation of this is that with a cotton plug there is quite free access of air and the water evaporates more rapidly than the hydrogen peroxide decomposes.

If the container is stoppered with cotton, the amount of hydrogen peroxide is not increased, but the percentage of it is increased because of the loss of water.

I wish to call your attention to the fact that solutions that were kept in the basement were more stable than those kept in diffused light, and those kept in diffused light were much more stable than those kept in the sunlight. Of two samples kept in the sunlight, one lost 98 percent and the other 99.9 percent. While the one kept in the amber bottle in the sunlight lost but 65 percent.

It seems to me that these facts lead us to conclude that pharmacists should keep their stock of peroxides in the basement and display but few bottles to the trade.

The fact that this solution decomposes so rapidly in the sunlight, should be impressed upon the buyer and they be instructed to insert a plug of cotton in the neck of the bottle and store it in a dark, cool place.

You will note the wonderful difference in rate of decomposition between solutions in colorless bottles and those in amber colored bottles, especially if those bottles are exposed to the direct rays of the sun, yet there are manufacturers today who put out their products in colorless bottles.

Many more interesting facts might be noted from the study of the "Loss %" column in this chart, but I will leave that for your consideration later.

Turning your attention to the results of the assays of different commercial brands of peroxide as shown in Chart B, you will note that most of them are nearly U. S. P., as far as the strength of the solutions are concerned. In justice to the Albany Chemical Co. and to Squibbs & Sons, I wish to explain that the sample from the Albany Chemical Co. was purchased in open market and I have no way of knowing how old it was before we assayed it; and that in case of the sample from Squibbs & Sons, we had it in our basement for two years, therefore it is not fair to them to compare this sample with a fresh one. I bring it in here to illustrate that some solutions of hydrogen peroxide do not keep well unless a preservative is used. You will note that Squibb & Sons do not use a preservative.

EFFECT OF VARYING CONDITIONS ON SOLUTIONS OF HYDROGEN PEROXIDE.

Sample	Basement	Diffused Light	Sunlight	Nov. 25 1911	Jan. 11. 1912	Mar. 12	May 7	Loss %
Eimer & Amend. Hydrogen Peroxide U. S. P. Contained 3/16 gram acetanilid.	Colorless bottle cotton plug.			3.19	2.70	2.86	2.99	6.6
	Colorless bottle cork.			3.19	2.60	2.50	2.35	16.3
		Colorless bottle cotton plug.		3.19	2.68	3.00	out	6.00
Purchased Sept. 24, 1911.		Colorless bottle cork.		3.19	2.36	1.94	1.39	56.6
		Amber bottle cork.		3.19	2.38	2.05	1.58	50.5
(In colorless bottle unin-closed.)			Colorless bottle cotton plug.	3.19	0.36	0.07	0.06	98.00
			Colorless bottle cork.	3.19	0.11	0.009	0.004	99.9
			Amber bottle cork.	3.19	2.32	1.76	1.12	65.
					Jan. 12	Mar. 12	May 7	
	Colorless bottle cotton plug.				3.48	2.98	3.83	9% gain
Oakland Chemical Co.	Amber bottle cork.				3.48	3.58	2.98	14.4
Dioxogen. Purchased Sept. 24; claimed 12 vol. H_2O_2.		Colorless bottle cotton plug.			3.48	2.89	1.28	63.2
		Amber bottle Cork.			3.48	2.50	1.35	61.2
	Colorless bottle cotton.				2.05	2.11	2.24	9.2 gain
Marchands Medicinal. Hydrogen Peroxide.	Amber bottle cork.				2.05	1.81	1.48	28.
		Colorless cottons.			2.05	2.11	out	
(Colorless bottle in carton.)		Amber bottle cork.			2.05	1.67	1.22	40.5
	Colorless bottle cotton plug.				2.48	2.97	out	20 gain
Marchands Hydrozone. 30 vol. H_2O_2.	Amber bottle cork.				2.48	2.31	out	7.0
		Colorless bottle cotton plug.			2.48	2.72	out	10 gain
(Colorless bottle in carton.)		Amber bottle cork.			2.48	1.90	out	23.42

STUDY OF COMMERCIAL BRANDS OF HYDROGEN PEROXIDE.

Samples	May 10	May 27	Salts	Assay Acidity	Solids
Parke, Davis & Co. Hydrogen Peroxide, 3% H_2O_2 3/16 gr. acetanilid per fluidounce. Guaranteed U. S. P. Full strength on leaving our laboratory.	2.98		Trace of sulphate	4 cc. of N/10 KOH to 25 cc. of solution	U. S. P.
Hydrox Consumers Co. 3/16 gr. acetanilid per fluidounce. Represents the highest chemical skill in producing absolute purity and potency. Conforms to the U. S. P. requirements, having the additional advantage of potency. Last drop as potent as the first.	2.61	2.5	Heavy with sulphate and chlorides	47 cc. of N/10 KOH to neutralize 25 cc. of sol.	U. S. P.
Albany Chemical Co. Hydrogen Peroxide, 3% H_2O_2, 1/6 gr. acetanilid per fluidounce. Guaranteed to be unsurpassed in purity, strength and keeping qualities.			Trace of sulphate Excess of chloride	U. S. P.	U. S. P.
Western Peroxide Co. Hydrogen Peroxide. 10 vol. H_2O_2. U. S. P. H_2O_2. 3/16 gr. acetanilid per fluidounce. 6 oz. 15c. Guaranteed. Serial No. 25940.	2.5	2.39	Trace of sulphate Excess of chloride	4.05 cc	U. S. P.
Squibbs & Sons. Hydrogen Peroxide (two years old). 10 vol. H_2O_2, made by special Squibbs process.	0.67		Trace of sulphate Excess chloride	39.4 cc.	U. S. P.
Hydrox Hydrogen Peroxide, Hydrox Chemical Co. 10 vol. H_2O_2. U. S. P. 3%. 3/16 gr. acetanilid per fluidounce. Last drop as potent as the first. Serial No. 2685.	2.68	2.5	Trace of sulphate	U. S. P.	U. S. P.
Hydrox. (Same as above. Sold at 9c per pint on sale. Regular price 25c.)	2.82		Heavy with chloride and sulphate	U. S. P.	U. S. P.
Oakland Co. Dioxogen. 12 vol. H_2O_2.	3.55		Trace of chloride	U. S. P.	U. S. P.
Menthymine. Hydrogen Peroxide. Billings, Clapp & Co. 3/16 gr. acetanilid per fluidounce. For the toilet. An improved preparation representing all the valuable properties of the ordinary peroxide. (Contained menthol and was colored.)	0.24		Trace of chloride	30 cc. of N/10 KOH to neutralize 25 cc. of	Little higher

You will notice that a great many of these samples contain an excess of chlorides or sulphates, although the U. S. P. gives tests for these salts. You will also notice that in some cases the acidity is much higher than that allowed by the U. S. P., namely 2.5 cc. of N/10 potassium hydroxide to neutralize 25 cc. of solution. Again I wish to say, in justice to Squibb & Sons, that this sample tested much higher in acid content than did their samples assayed by the government chemists. I do not know whether this was due to its being an old sample or not.

You will notice that menthymine was very low in hydrogen peroxide content and it contained menthol and a coloring agent.

It is interesting to note the difference between the claims of companies as shown in the column marked "Samples" and the result of the assay of their samples.

In conclusion, I wish to state that many solutions of hydrogen peroxide on the market today are very good, although they do not meet all of the tests of the U. S. P., and I do not believe that pharmacists can afford to carry only the high-priced standard varieties, and look with contempt upon the cheaper varieties carried by department stores and five and ten-cent establishments. I asked my students to purchase samples of hydrogen peroxide to assay, and two of them brought in samples of the same product manufactured by the same company; one had obtained a two-ounce sample at a drug store for fifteen cents, the other a four-ounce sample at a department store for ten cents. Such deals as these lead the laity to believe that pharmacists are charging an excessive price for their material. It would seem to me that it would be better to carry a good U. S. P. article and charge enough for it to make a reasonable profit, and also carry a little of the cheaper, inferior article and display them together, meeting the department store on the price of the cheaper article, and then explain to the purchasing public why one article is better and consequently more expensive than the other. I believe you will sell but little of the cheaper grade of material, and you will hold the confidence of your customers.

THE MAN WITH INITIATIVE.

All the great prizes of this world are reserved for those who possess initiative.

Initiative has been defined by one of our most versatile writers as "doing the right thing without being told, and the next best thing, to do the right thing after being told once." But we want a more practicable and understandable meaning of this marvelous quality.

Let us say that any individual who always is, to a large degree, helpless, depending upon some force outside of himself to bring out his usefulness, lacks initiative. A man without initiative is a man that cannot get up steam, pick out a course and steer away to his destination without the help of somebody else.

But the man with initiative is a live wire. This is the kind of men for whom good positions are going begging every day.—*Western Druggist.*

Papers Presented to Local Branches

CHLOROPHYLL[1]

CURT P. WIMMER, M. A., PHAR. D., NEW YORK CITY.

The Dutch scientist, Ingenhouss, was probably the first one to discover that carbon dioxide is assimilated by the plant. This was in 1779. His observations were confirmed by Theodore de Saussure, of Geneva, in 1804. Their announcements caused a sensation and were thoroughly ridiculed and really not accepted until Liebig's time. The name Chlorophyll was given to the green coloring matter of the plant by Pelletier and Caventou in 1817. This term "chlorophyll" applies strictly to the coloring matter and not to the so-called chlorophyll granules of the plant cell.

Chlorophyll does not occur alone, but always associated with two yellow coloring matters, namely, Carotin and Xanthophyll. These substances are embedded in granules of albumenoid composition. The shape of these granules is, in most plants, that of a lentil. In some algae we find them, however, in the shape of bands, or plates or stars. In a few cases, the chlorophyll is evenly distributed over the entire plasma. In the higher forms of plants, we find chlorophyll bodies in all *green* plant parts, namely, in the leaves, and here again in or below the palisade cells which line the upper side of the leaf, which side is exposed to the light. The chlorophyll bodies, called chloroplasts, consist of one or probably two albumenoid substances of a spongy texture, in the meshes of which the coloring matters, together with other substances (oil), are embedded. The body is surrounded by a very fine plasma membrane. Stoma as well as membrane are soft and plastic; the granules can therefore change their shape readily. A cell densely filled with granules—sometimes we find fifty to sixty granules in one cell—will show them in triangular, quadrangular or polyangular form. The membrane, however, prevents the granules from forming one mass. Upon the death of the cell, the membrane disintegrates and granule-body and contents form one shapeless mass. At the same time, the bright green color is changed to a brown, due to the presence of acid cell juices which can and do now attack the coloring matter. For this reason, our dried drugs, especially those which have not been dried carefully, present a brownish-green appearance.

Besides the coloring matters, we find certain colorless bodies and protein masses in the chloroplast. The chlorophyll is looked upon as the substance which assimilates the CO_2; the colorless bodies probably assist in the storing of the starch formed and in changing it into soluble diastase. Under the influence of light,

[1]Read at the January meeting of the N. Y. Branch A. Ph. A.

CO_2 and H_2O are changed into starch and this is stored. When the starch production rests (at night) the starch is changed into diastase. The function of these chloroplasts is of greatest importance for the life of the plant as well as for our own. They convert the energy of the sun into vital energy. CO_2 and H_2O are formed into starch and other substances which serve as food for plant and animal.

In plant parts not exposed to light, so-called chromoplasts or bodies containing a yellow coloring matter take the place of chloroplasts. These chromoplasts, however, occur also in plant parts exposed to light, such as certain flowers, and are often formed from the chloroplasts. We have evidence of this in the change of color when apples or oranges ripen.

Starch is the first *visible* product of the chromoplast's photosynthesis, although simpler intermediate compounds are doubtless first formed. This starch is converted into soluble form at night and carried, in solution, into plant parts requiring nourishment.

Several conditions are absolutely necessary for the formation and function of chlorophyll. First of all and most important is light. Most plants fail to produce chlorophyll in darkness, although some do (conifers and maple). Light, especially the red rays, acts as stimulus. The work of chlorophyll cannot be done in darkness, nor can protoplasm produce chlorophyll without it. Plants grown in the dark or at low temperature are called "etiolated." They are of a yellowish color, and turn green on exposure to light. The coloring matter "etiolin" is most likely an intermediary substance in the formation of chlorophyll and is changed into this substance upon absorption of red light rays.

Iron is not a constituent of chlorophyll, but it also seems to act as a stimulus upon the living protoplasm to produce chlorophyll. On the other hand, neither light nor iron alone can bring about the production of chlorophyll. The cell must contain certain specific chromoplasts. The cells of animals, fungi and certain phanerogamic parasites do not contain these chromoplasts and do, therefore, not form chlorophyll.

As the presence of certain granules is necessary to form chlorophyll, so will chlorophyll do its work only when in the granule and again then only when contained in the living protoplasmic cell. Isolated chloroplasts continue for a time to absorb CO_2 and give off oxygen. If anaesthetized by ether, they will only absorb light rays, but no longer take up CO_2 nor give off oxygen.

The conditions and factors necessary for the change taking place in the cell are: CO_2, H_2O, warmth, light of definite wave length, chlorophyll and protoplasm. We might compare the cell to a factory. Light is the stimulus which sets the machinery going. Water and CO_2 are the raw materials, chlorophyll is the machinery itself. Starch is the food product turned out.

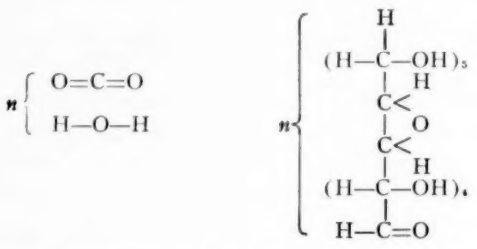
How is this wonderful work accomplished? Only very little is known about it.

As I stated before, starch is the first *visible* product of this photosynthetic process, but it is surely not the first and only product. The starch molecule is very complex, carbon dioxide and water very simple in chemical construction. We must assume, therefore, that a number of simpler compounds are first formed and these again are changed into starch.

We can represent the change as follows:

$$n(6CO_2+5H_2O)=n(C_6H_{10}O_5+6O_2),$$ or

graphic:



In one plant (Tropaeolum) it has been found that the formation of sugar precedes that of starch.

Van Baeyer proposed the following series of changes, as probable:

$$CO_2+H_2O=HCOOH+O=HCOH+O_2$$
$$6n(HCOH)=n(C_6H_{12}O_6)=n(C_6H_{10}O_5)+H_2O.$$

Objections to this theory are that HCOH and HCOOH are poisonous substances which would kill the cell, unless their conversion into harmless substances is instantaneous. Another series of reactions must, therefore, take place simultaneously.

Emil Fischer believes that the formation of a compound of CO_2 with HCOH precedes that of sugar and starch.

The amount of CO_2 taken up by plants is enormous. 10,000 L air contain 4-5 L of CO_2, which weigh 8-10 gm. Of this 3/11 is carbon. So in 10,000 L of air we have about 2 gm. C. A tree weighing 5000 kg. contains about 2,500,000 gm. of C. To get this amount, the tree must absorb and assimulate the CO_2 of 12,000,000 cc. of air. This figure is astonishingly large. However, we must not forget that the air contains about 3000 billion kg. of CO_2. This alone is sufficient to sustain plant life. Furthermore, the supply is constantly replenished by decaying matter, animal breathing, burning of wood and coal and by volcanoes.

Properties: Chlorophyll is an unstable substance. It is destroyed by strong sunlight, most readily by the red rays. This destruction seems to be an oxidation process, as it takes place only in the presence of oxygen. Chlorophyll is readily soluble in ether, alcohol, fatty and ethereal oils, petrolatum, petroleum, carbon disulfide. Alcoholic solutions are emerald green in transmitted light and show a blood-red fluorescence. The spectrum shows seven absorption bands and is absolutely characteristic. Benzin dissolves the chlorophyll and carotin from an alcoholic solution and leaves the xanthophyll in the alcohol.

Two general methods can be used for the separation of chlorophyll from its yellow companions.

Fremy's process: Shake one volume of alcoholic solution of chlorophyll with a mixture of two volumes of ether and one volume of concentrated HCl. Upon separation, the upper layer contains the golden yellow xanthophyll, the lower acid layer is colored bluish-green and contains a decomposition product, phyllocyanin.

Kraus' method: A 65% alcoholic solution of chlorophyll is shaken with twice

its volume of benzin (.714). The upper layer is green, due to chlorophyll; the lower one is yellow, due to xanthophyll.

Very little indeed was known of the chemistry of these coloring matters until Willstatter and his assistants took up the work. Today we know many interesting facts regarding their chemistry, and thanks to this genial research chemist, a large amount of work has been and is now being done on chlorophyll. Judging by his past most successful work, we can confidently expect that the chemistry of these interesting substances will be completely cleared up within reasonable time.

I will give a summary of his work of the last six or seven years, and in order not to tire you, I will omit all purely chemical discussions and theories and present facts and how they were found.

Hoppe-Seyler, von Tschirch, Schenck, Marchkowski and many others had experimented with chlorophyll and came to divergent conclusions in many cases.

To obtain chlorophyll in comparatively pure form, Kraus' method was used and improved considerably by the substitution of wood alcohol for ethyl alcohol. Grass, spinach, and many other chlorophylls were used. It was observed that chlorophyll forms a colloidal solution with water. This colloidal solution was used for purposes of further purification. Ether does not extract chlorophyll from it, but its impurities, especially the carotin. The colloidal solution is pale green, turbid, not fluorescent. The chlorophyll can be recovered from it either by salting out and extracting with ether, or by adding an acid, when the chlorophyll is changed to its insoluble form, deeply colored, when it can be extracted with ether. The chlorophyll, thus purified, was subjected to acid and alkali of different strength and under different conditions and a number of reaction products obtained.

Chlorophyll
- Acids
  - Phytines—Phaeophytine
    - Phytochlorine
    - Phytorhodine
- Alkalis
  - Phyllines—Glaucophylline—Rhodophylline
    - Pyrrophylline
    - Phyllophylline

We will now take up the action of acids. Nitric acid destroys chlorophyll with separation of a colorless oil, which comes from the alcohol rest of the chlorophyll ester.

Reaction with other acids is marked by a color change and a splitting out of magnesium. The presence of Mg in the chlorophyll molecule was proven beyond doubt in all experiments; 2½ to 3½% of MgO is found in the ash. It is very readily split off by acids. HCl in 11% solution changes chlorophyll into a compound, which is soluble in ether with olive-green color. Warmed with alcohol, it assumes a bright red color.

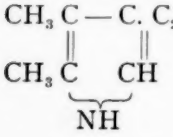
Compounds obtained by action of acids are called "Phytines," those obtained by action of alkalis "Phyllines." Acid action also produces an ester without basic or acid properties—consequently chlorophyll itself is an ester. Phosphorus was not found at any time, consequently an older theory that chlorophyll was similar to lecithin was proven incorrect. On treating an alcoholic solution of chlorophyll with an alcoholic oxalic acid, a product not readily soluble in alcohol was formed.

It was extracted with chloroform, to which it imparts a brown color. Isolated, this substance was called Phaeophytine. It is waxy, almost black; in solution, olive-brown with red fluorescence. With metals, zinc, copper of iron, it becomes chlorophyll-like. When this phaeophytine is saponified with alkali, it splits off an alcohol, $C_{20}H_{40}O$, which was called Phytol, and which was subsequently found in all chlorophylls.

In contradistinction to action of acids, alkalis do not split off the magnesium; the principal products of alkaline hydrolysis are deep green alkali salts which contain the Mg in complex form, most likely attached to the nitrogen.

On treating chlorophyll with alcoholic KOH on the water bath, it takes on a beautiful fluorescence. At 140° C., a crystallizable compound is formed. At 200°, it changes into another compound, which is red and which is termed Rhodophyllin. All of these still contain Mg. They show marked properties as to crystallization and solubility. To obtain rhodophyllin in pure state, it was necessary to use bomb tubes. In the ash of the compound thus prepared, Willstatter found to his surprise zinc oxide. Upon investigation, this was found to come from the glass. It had replaced the Mg in the molecule. This shows how easily the Mg can be replaced. Further experiments were carried out in a silver cup enclosed in an autoclave. Addition of water precipitated the rhodophyllin, which is purified by NH_4OH extraction of ethereal solution. Upon analysis it was found to be $C_{33}H_{34}N_4O_4Mg$. The present accepted formula for Haemin is $C_{34}H_{34}N_4O_4FeCl$. The difference of the one C atom in such a large molecule may be overlooked and Willstatter believes that the Rhodophyllin is very closely related to Haemin, and surely possesses the same nucleus.

Another chlorophylline, which was called Phyllopophyrine, showed the formula $C_{32}H_{36}O_2N_4$, which corresponds to Haematoporphyrin, a derivative of our blood coloring matter, $C_{32}H_{36}O_6N_4$. They differ only by the O_4. Both substances must have the same nucleus, for on reduction each one forms Di-methyl-ethyl pyrrol



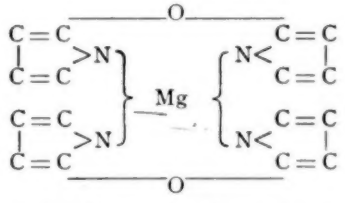
These facts point to a genetic relationship of the two substances, haemoglobin and chlorophyll, although their physiologic functions are entirely different. Chlorophyll contains magnesium, haematin contains Fe; these metals undoubtedly exercise a catalytic action and the assimilation of CO_2 is a function of the basic metal Mg. Plant life is mainly synthetic; carbohydrates, fats and albumens are built up of the simplest inorganic substances. Animal life needs iron to carry on its analytic functions by oxidation and Fe acts as the oxygen carrier.

The question as to whether the chlorophylls of all plants are alike was answered in the affirmative after an examination of several hundred different plant extracts. Discrepancies in the results were found to be due to an enzyme action. When a green plant is extracted with alcohol, an enzyme which accompanies the chlorophyll, becomes active and alcoholizes it; the phytol rest is replaced quantitatively by C_2H_5. The solvent will show a brownish color. This can be avoided by a rapid extraction, or by addition of a small amount of alkali. Some plants

are richer in chlorophyllase than others. Water enhances the action of this enzyme, wood alcohol retards it. Chlorophyll and chlorophyllase appear to be specific for one another. Other esters, such as spermaceti, were not affected by chlorophyll, nor did other enzymes, such as pancreatin, split chlorophyll. The enzyme not only splits chlorophyll, but also forms it. Upon addition of phytol to phytol-free chlorophyll esterification took place; this enzyme, no doubt, plays an important part in the formation of chlorophyll in the plant.

The chlorophyll of all plants showed the presence of Mg and of 1-3 of its molecule of phytol. The final reaction products of alkalis on phaeophytine were two substances which are the components of chlorophyll: one bluish-green, photochlorine; the other yellow-green, phytorhodine, which were isolated and analyzed. A structural formula was found for phytol.

Absolutely pure chlorophyll was obtained and found to be crystallizable, forming a blue-black powder with metallic lustre, readily soluble in alcohol and ether, but insoluble in benzin. The solutions are blue-green. It contains 5% MgO in its ash, its composition corresponds to $C_{55}H_{72}O_6N_4Mg$ and most likely possesses the following nucleus:



The yellow coloring matters have also been examined. Berzelins found a yellow substance and called it Xanthophyll. Arnaud found another substance the formula for carotin to be $C_{40}H_{56}$, a hydrocarbon. (Benzin extraction). and named it Carotin. Willstatter isolated them and examined them. He found Xanthophyll is obtained by precipitation from alcoholic solution with petroleum benzin. It crystallizes readily, forms red plates. Its formula is $C_{40}H_{56}O_2$. We have here a simple relation to carotin. Xanthophyll is its oxide. Both are unsaturated and absorb oxygen readily, even by mere exposure to air. They probably are the vegetable oxygen carriers.

SOME ACTIVITIES OF THE AMERICAN MEDICAL ASSOCIATION AND THEIR VALUE TO PHARMACISTS[1]

L. E. WARREN, PH. C., B. S., CHICAGO.

As the name implies, the American Medical Association is an association of physicians. In a general way it fulfills the functions for medicine that the American Bar Association does for law, the American Pharmaceutical Association does for pharmacy, and the American Dental Association does for dentistry. The American Medical Association has a membership of about 38,000.

The American Medical Association is ruled by a body of representatives called the House of Delegates. These are elected by the several state associations, by

[1]Read before the Chicago Branch A. Ph. A., Nov. 26, 1912.

the scientific sections of the Association, and appointed by the surgeon generals of the Army, Navy and Public Health Service of the United States. One delegate is elected from each of these sources, except from the affiliated state societies, in which the number of delegates to which the constituent society is entitled depends on the number of its active members. The House of Delegates elects a Board of Trustees consisting of nine members, which board has charge of the property and of the financial affairs of the Association.

One of the most important functions of the American Medical Association is the publication of its journal, *The Journal of the American Medical Association.* This is the largest, and by those competent to judge, said to be the best weekly medical journal in the world. It has an average circulation of about 56,000 copies. Each semi-annual volume contains an average of about 2200 pages, or about 4400 pages per year.

The Association publishes a directory of all of the physicians in the United States. This gives the doctor's name and address, date of his birth, his college and year of graduation, the date of his license to practice, and other useful information.

Most of the work of the Association is done by Committees and Councils appointed for the purpose. Nothing need be said here about the Committees as they are generally similar to committees of other scientific societies. There are four Councils, viz., The Judicial Council, the Council on Medical Education, the Council on Health and Public Instruction and the Council on Pharmacy and Chemistry.

The Judicial Council.—The Judicial Council consists of five members. In a way it is a kind of society court in which all kinds of controversies in which the Association or one or more of the constituent societies, is a party are settled.

"* * * At its discretion it (the Judicial Council) may investigate general professional conditions and all matters pertaining to the relations of physicians to one another and to the public. * * * "

The Council on Health and Public Instruction.—The Council on Health and Public Instruction consists of five members. Its work embraces (a) legislation, (b) organization, (c) public instruction, (d) defense of medical research, and (e) public health.

"Through its Council on Health and Public Instruction the American Medical Association is seeking to coordinate the medical profession and the public; to unite all forces working for improvement in health conditions in cities, states and the nation; to enlighten the public on the aims and purposes of the medical profession for the prevention of disease, and to strengthen public confidence in the profession and its work."

This Council regularly sends to the newspapers and to agricultural, labor, religious and similar periodicals abstracts of analyses of fraudulent "patent-medicines," and of editorial articles and current comments on matters relating to publice health which have appeared in *The Journal of the American Medical Association.*

The Council on Medical Education.—The Council on Medical Education also consists of five members. Some of its duties are to:

1. To make an annual report to the House of Delegates on the existing conditions of medical education in the United States.
2. To make suggestions as to the means and methods by which the American Medical Association may best influence favorably medical education.
3. To act as the agent of the American Medical Association under instructions of the House of Delegates in its efforts to elevate the standard of medical education.

A representative of this Council visits every medical school in this country at least once in two years. The information obtained is classified and those colleges receiving a rating of 70 percent or above are listed in "Class A," those receiving a rating of from 50 to 70 percent in "Class B," and those rated below 50 percent in "Class C." "Class A" colleges may be considered, therefore, as acceptable colleges, those of "Class B" as colleges which require certain definite improvements to make them acceptable and those of "Class C" as colleges in which complete reorganization would be required to make them acceptable.

The Council believes that the coming American standard for medical education will be: A four-year high-school education; a year or two in the university laboratories of chemistry, physics and biology; four years in the medical school and a clinical year as an intern in a hospital.

It will be seen that while this work is somewhat of the nature aimed at by the American Conference of Pharmaceutical Faculties for schools of pharmacy it is much more comprehensive. For the respective professions, I believe, that the Council on Medical Education is much more potent for the raising of educational standards than is the American Conference. Since the work on medical education of the American Medical Association became better appreciated a number of schools which were at first placed in "Class B" have increased their equipment, lengthened their courses, or otherwise made changes for the better, so that they are now placed in "Class A." The work of this Council is indirectly of benefit to pharmacists, in that it tends to make better and more scientific physicians. The work of this Council should be an object of emulation for the American Pharmaceutical Association.

The Council on Pharmacy and Chemistry.—For many years previous to the establishment of the Council on Pharmacy and Chemistry the medical profession had been at the mercy of dishonest manufacturers of proprietary medicines. The simplest drug mixtures were exploited as "new synthetics" under the most outrageously extravagant claims for therapeutic worth. Numerous cod-liver oil preparations that contained little or no cod-liver oil were foisted upon the helpless doctor. Consumption remedies that were practically nothing but cane sugar were sold at high prices. Detail men from the manufacturing houses, having no knowledge of medicine or pharmacy, brazenly assumed to teach physicians how to treat disease. Every imaginable kind of fanciful fraud was advertised to the profession. Year after year committees were appointed by the American Medical Association in an endeavor to remedy these evil conditions. Resolution after resolution condemning the practice was passed but the manufacturers went serenely on humbugging the doctor and his patients. One of the methods that was hit upon by the Association for compelling the manufacturers to tell the truth about their products was to compel the divulgence of the formula for every preparation that was to be advertised in the Association's Journal. The medical profession then thought that the perplexing problem had been settled. But immediately some of the most wonderful "formulas" appeared in the advertisements in medical journals! Many were chemical impossibilities. Doubtless to physicians they were sometimes imposing. To chemists they were often extremely absurd. A thorough trial of the new system demonstrated that conditions were but little better than before. After much deliberation the American

Medical Association established the Council on Pharmacy and Chemistry which began the difficult task of "separating the sheep from the goats" in proprietary medicines.

The work of the Council on Pharmacy and Chemistry has a more direct bearing on pharmacy and exerts a greater influence upon pharmacists than the activities of any or all of the other councils of the American Medical Association. To quote:

"The Council on Pharmacy and Chemistry was established in 1905, primarily for the purpose of gathering and disseminating such information as would protect the medical profession in the prescribing of proprietary medicinal articles. In pursuance of this object, the Council examines the articles on the market as to their compliance with definite rules which are designed to prevent fraud, undersirable secrecy and the abuses which arise from advertising to the laity. Such articles as appear to conform to the rules are accepted and their essential features are described in the annual publication of the Council, the 'New and Non-Official Remedies.'"

The members of the Council on Pharmacy and Chemistry have been chosen for their peculiar fitness for the several lines of investigation required of an advisory body of this nature. Some are practical pharmacists of long experience; others are teachers of therapeutics or of pharmacology in our best colleges; still others are officials which are or have been connected with the enforcement of the Federal Food and Drugs Act; one is editor of the Association's journal. Each is an expert in his chosen field of activity. With the exception of the secretary, who devotes all of his time to the work, the members of the Council serve without pay.

In addition to the sixteen regular members of the Council there are several foreign correspondents and a large force of clinical consultants to which matters are referred from time to time.

In describing the work of the Council on Pharmacy and Chemistry free use has been made of two editorials which appeared in *The Journal of the American Medical Association*[1] some time ago. One of these more particularly considered the work of the Council and the other that of the Laboratory. To quote from the first of these:

"The organization of the Council on Pharmacy and Chemistry, and the publication in The Journal of the work accomplished by the Council, have made more enemies for the Association and its journal than all other activities of the Association combined. When it is realized that millions of capital were and are invested in the manufacture of fraudulent proprietaries and that a large portion of the medical press was and is deriving its existence directly or indirectly from the proprietary interests, it is not surprising that the most strenuous opposition arose when the Council undertook to tell the medical profession the truth about therapeutic frauds.

"Proprietary products submitted to the Council are not hastily or superficially examined, but to each the most painstaking and careful consideration is given. Notwithstanding this, the Council has critically examined and thoroughly considered the claims made for more than twelve hundred products, of which over six hundred have been accepted for inclusion in 'New and Non-Official Remedies.' There are, of course, hundreds of nostrums which on their face are so plainly fraudulent that no intelligent physician would be misled by them, and to whch, since they stand self-condemned, the Council has not attempted to give more than a superficial examination. It is impossible for those not familiar with the details to realize the amount of work that these figures represent. Nor does the examination of proprietary products which the manufacturers themselves have submitted, comprise nearly all the labors of the Council. A large number of widely advertised preparations for which specious claims are made, have been taken up on the Council's own initiative, and their viciousness made plain to the medical profession.

"In addition to the vast amount of work that has been done on proprietary products, a number of drugs that are neither proprietary nor official have been considered by the Council. Such of these products as seem to have some therapeutic virtue have been de-

[1] J. A. M. A., 54, 1210, 1378 (1910.)

scribed in 'New and Non-Official Remedies,' while descriptive and critical reports have been published on those that are without proved value and whose deletion from the already overburdened materia medica would be desirable."

As examples of the above may be mentioned calcium phenolsulphonate, copper citrate, magnesium peroxide and quinine tannate which were accepted after exhaustive studies had been made. Similarly, cactus,* cineraria, echinacea, helonias and strychnine arsenate were rejected.

For many years the food value of meat extracts was believed to be very great. Physicians as well as laymen shared in this belief although it had frequently been shown that the chief value of preparations of this nature lay in their stimulating properties. The Council examined a considerable number of widely advertised proprietary meat extracts and meat juices and showed that they were practically valueless.

Within the past three years the Council has devoted much time and work to the consideration of serums and vaccines and has prepared descriptions of the various products found on the American market, if marketed in accordance with the Council's rules.

The granting of such sweeping monopolistic rights (as is now done under our trade-mark and patent laws) for the manufacture and sale of substances designed to heal the sick is an injustice. The Council is making a study of patent and trade-mark laws in an endeavor to remedy or mitigate these evils.

Having practically completed the examination of proprietary medicines the Council has turned a portion of its attention to problems of therapeutic research. One of these which is not yet completed is a study of the relative toxicity of synthetic salicylic acid and its compounds as compared with that of the acid occurring in plants. For many years certain manufacturers and physicians have maintained that synthetic salicylic acid owing to its impurities is more irritating—more poisonous—and consequently less efficient therapeutically, than that made from natural oil of birch or wintergreen. Others believe that there is no difference. The problem is being attacked by the Council's research committee from its chemical, clinical and pharmacological sides. Its solution will be of great interest to science and may be of great economic benefit to pharmacists since the acid from natural sources costs from ten to fifteen times as much as the other kind. After exhaustive studies upon cats, mice and rabbits the pharmacological investigators have reported[2] that they could find no difference in toxicity for these animals between the two classes of preparations. The reports of the chemical examination and of the clinical studies, each of which has been carefully carried out, have not as yet been published, but it appears probable that the findings will show that the synthetic salicylates are not less pure than the natural, that the one is not more toxic than the other and that there is no difference in the therapeutic value of the two.

The question of intestinal antisepsis has been studied by the Council's research committee. For a long time it had been supposed by many physicians that certain drugs when taken internally would prevent or greatly retard the bacterial de-

*Compare "Vegetable Drugs Employed by American Physicians," Journ. A. Ph. A., Nov. 1912, p. 1228.

[2]Sollmann: Arch. Int. Med., 8, 784 (1911); Waddell: Ibid.

composition of food in the large intestine with the resultant formation of indol compounds and related poisons. Others have doubted the efficiency of the reputed intestinal antiseptics. At the Council's suggestion a well-known bacteriologist undertook to determine whether there really are any intestinal antiseptics. His results[3], while not absolutely conclusive, show that intestinal antiseptics cannot play as important a role in therapeutics as had previously been supposed, and that they are probably of little value.

In addition to this it has included therapeutic research in its activities and the solution of the problems it is undertaking will wield an inestimable influence on the therapy of the future.

The Laboratory of the American Medical Association.—Valuable as has been the work of the Council on Pharmacy and Chemistry to the medical profession it is doubtful if this work could ever have obtained its present far-reaching influence on scientific medicine without the aid of the chemical laboratory of the American Medical Association. Until the establishment of the Council on Pharmacy and Chemistry seven years ago there was no disinterested, reliable body to which physicians could apply for information regarding proprietary medicinal products. In other words, the physician had no means of obtaining unbiased, scientific data on the preparations that he was using daily in the treatment of disease. All information concerning proprietary medicines had to come from those who were commercially interested in their sale. It is needless to say that information from such a source might be expected to be so biased as to be well-nigh worthless for scientific purposes.

By far the most important work of the Council on Pharmacy and Chemistry has been that of determining the actual composition—as compared with the alleged composition—of proprietary medicines. Careful and painstaking chemical analyses were essential to do this. The Council had to depend either on its own members or on commercial laboratories for such analyses. The arduous duties connected with such work, which of necessity had to be of the most careful and painstaking nature, made it impracticable to expect the chemist members on the Council to do it themselves; it was also found unsatisfactory to have it done in commercial laboratories. To meet these difficulties a chemical laboratory was established by the Association.

The composition of medicinal products submitted to the Council is determined in this laboratory and the findings compared with the claims made by the manufacturers. In addition to this numerous questions of a pharmaceutical or chemical nature arising in the editorial department are submitted to the laboratory for solution. But this is by no means all. To quote from the above mentioned editorial on the Association's laboratory:

"A most comprehensive and complete reference library containing the latest and best books on chemistry, pharmacy and the allied sciences, has been collected by the laboratory and every important pharmaceutical and chemical journal published in any language is to be found there. The average reader may not appreciate all that this means. It means that the latest and most reliable data concerning new drugs—proprietary or otherwise—from all parts of the world are now at the disposal of the medical profession of America. The larger manufacturing houses have long realized the value of such data for purely commercial purposes, and they have been careful to keep in touch with what was going on outside this country, and were ever on the watch for anything new which might develop and which could be used by them. Physicians, however, have been among the last to learn the facts

[3]Harris: J. A. M. A., 59, 1344 (1912.)

regarding new remedies; the information which manufacturers collected so zealously for themselves was not allowed to trickle out among the medical profession until it had been colored, flavored and sophisticated, often out of all likeness with the original, but always into apparent praise of the preparations marketed under trade-marked name."

Since the inception of the laboratory there has been compiled, systematically and thoroughly, probably the most complete collection of proprietary medicine advertising "literature" to be found in the world outside the Bureau of Chemistry—and that in the latter is not available to the public or to the medical profession.

"Such a collection is of inestimable value in tracing, through the devious paths of ever-varying claims for composition and therapeutic virtues, the evolution of many proprietary products now on the market. To see the advertisements put out by different firms a few years ago, and then to compare them with advertisements for the same products today, is in itself a revelation of the steady change—for the better—that has taken place in the commercial standards of pharmaceutical manufacturers.

"The work that the laboratory has done in exposing, through the pages of *The Journal of the American Medical Association*, the frauds connected with the exploitation of some of the 'ethical' proprietaries, is well known. The Council has felt that the medical profession, having vigorously attacked the 'ethical' proprietary evil and, to a large degree at least, set its own house in order, could no longer be accused of inconsistency in exposing the broader and more widely-spread frauds of the 'patent medicine' traffic. Within the past few years, therefore, the laboratory has extended its work to include the examination of some of the more vicious 'patent medicines.'"

In connection with this work there is being made an ever-increasing collection of information on practically every pharmaceutical or medical humbug that has come before the public in recent years. This information is collected from the federal notices of judgment under the Food and Drugs Act sent out by the government, from reports of state and municipal food and drug laboratories and from foreign journals. It can be said without fear of contradiction that there are few reports of the analyses of medicines, if at all valuable, whether made here or abroad that escape the watchful eyes of the laboratory staff. Inquiries for information about medical frauds and fakes are constantly being received. A few of these are answered through *The Journal of the American Medical Association* in its department of Queries and Minor Notes, but the limitations of space make it necessary to answer the great majority by correspondence. This work is done by the laboratory staff or by an official of the propaganda department. As a correlated branch of the laboratory's work, a "testimonial file" has been compiled in the propaganda department which contains the names of several thousand physicians who have written testimonials for various proprietary preparations. As an illustration of the use that is made of this file I will quote from an article in *The Journal of the American Medical Association* of recent date:

"Of 104 physicians who had written testimonials for Duffy's Malt Whiskey, 5 are members of the American Medical Association, and 18 have written testimonials for other nostrums. From our files it appears that some of the 104 testimonial-givers are either advertising quacks or are connected with fraudulent medical concerns. It is not difficult to estimate the scientific value of testimonials that come from such sources."

Doubtless the greatest value of the laboratory work has come through the fearless publicity which *The Journal of the Americal Medical Association* has given to the laboratory's exposures of the shortcomings of pharmaceutical manufacturers. No firm has been so large or so powerful as to escape criticism of its products or its methods, if criticism were needed; and no firm has been so small or so insignificant as not to receive credit for worthy preparations, if credit were due.

In striking contrast with the fearless attitude of the Association's laboratory in exposing adulterated drugs is the action of the Illinois State Food Commission as instanced in its exhibit of adulterated foods at the Home Makers' Exhibit and Conference, held in Chicago November 18-23, 1912. This is a good illustration of how the most important functions of municipal and state laboratories apparently are sometimes kept in abeyance in fear of manufacturing interests. In this exhibit a large number of specimens of foods which were said to be adulterated were shown. From practically every one of these specimens the name of the manufacturer had been carefully removed or otherwise obliterated. Of what possible use to the housewife was such an exhibit? Had the names of the manufacturers been given, the visitors would have been given information to guide in future buying. Of what use are state food laboratories if not to give publicity to the methods of dishonest manufacturers? It is a mistake to argue that the principal function of state food laboratories is to bring prosecutions against the adulterators of foods and drugs. Manufacturers care little for prosecutions. It is publicity that they fear. It is this that they seek to avoid.

One of the most hopeful signs in pharmacy that I have seen of late is the proposition of the National Association of Retail Druggists and of the American Pharmaceutical Association to establish laboratories of their own. I believe that if these organizations do this and secure directors for their laboratories who are perfectly honest and fearless—men who will not "toady" to the manufacturing interests—the influence of these organizations upon honest, scientific pharmacy will become far more powerful than it has hitherto been.

"What the chemical laboratory of the American Medical Association has accomplished cannot easily be separated from what the Council on Pharmacy and Chemistry has done, for the work and aims of those two institutions have been largely along the same lines. Some things, however, can be credited specifically to the laboratory's account:

"It has shown up the worthlessness of many of the widely advertised 'ethical' proprietaries and has torn the veil of mystery from some of the most vicious 'patent medicines' on the market. It has made ridiculous in the eyes of the profession the impossible and absurd formulas with which the advertising pages of medical journals—*The Journal of the American Medical Association* among them—used to abound. It has proved that many combinations of drugs offered to the profession are pharmaceutical impossibilities and scientifically absurd. It has challenged successfully the attitude previously taken by pharmaceutical manufacturers that no one had a right to publish anything derogatory to their proprietary products."

A feature in the methods of manufacturers that is of great interest to pharmacists and that has occupied the attention of the American Medical Association is the practice of exploiting a definite chemical under a variety of proprietary names and at much higher prices than is charged for the same chemical when sold under its own name. For example, hexamethylenamin is a drug which has certain rather well-defined pharmacological properties. It is sold under such names as "aminoform," "cystamin," cystogen," "formin," "hexamin," "urisol," "uritone," "urotropin," etc. Cases have occurred in which physicians who were ignorant of the identity of these several proprietaries have prescribed two or more of them at once, thus thinking to obtain the combined effects of different urinary antiseptics. Another example of this exploitation of the physician, the pharmacist and the patient to pay the dividends of pharmaceutical manufacturing companies is afforded by phenolphthalein. Like hexamethylenamin this is an individual substance and, like it also, it has pretty well defined pharmacological properties. Pharmaceutical manufacturers sell it either alone or mixed with other laxatives

under such names as "exurgine," "laxaphen," "laxathalen," "phenalein," "phenolax," "thalosen" and others. Prescribing a drug under a catchy, proprietary name tends to lead to the prescribing of the name instead of the drug. Prescribing names instead of drugs is unscientific and should be discouraged by every medical school and medical journal. Pharmacists cannot be expected to stock all of these fancifully named preparations—to do so would be ruinous—yet if they do not do so and supply the drug of one name when another is ordered the pharmaceutical manufacturer stands ready to cry *"substitution."* Another example of the same kind is epinephrin. This is sold as "adnephrine," "adrenalin," "suprarenalin," "supracapsulin," etc.

Another case which is somewhat similar to those named above is that of acetphenetidin and phenacetin. Acetphenetidin is an official drug. As a general thing, physicians use the word "phenacetin" when prescribing acetphenetidin without intending to prescribe any particular brand because they are familiar with this word and are not as familiar with the official term "acetphenetidin." They will doubtless continue to use the term "phenacetin" and apparently there is no sufficient reason for doing otherwise. During the life of the patent on "phenacetin" the word became a familiar one, and the product became generally known by this name. But a coined name for a patented article loses its proprietary character and becomes the common name of the article as soon as the patent expires. That is, when the patent expires, not only the product but also the name itself becomes common property. This principle has been recognized in the courts. Those who formerly controlled the product and the name "phenacetin" evidently recognize this principle, for they have taken no steps to prosecute any of the firms in this country which sell the product openly under the name "phenacetin."

It is interesting to know that the former owners of phenacetin, the Farbenfabriken of Elberfeld Co., now sell phenacetin in this country for about 25 cents per ounce and at the same time sell acetphenetidin for about 6 cents an ounce, the two products being identical in every essential particular. The pharmacist should recognize that *acetphenetidin* is identical with *phenacetin,* and that he may dispense the former when phenacetin is prescribed, provided of course, that no special brand of phenacetin is ordered. Likewise the names "lanolin," "sulphonal" and "trional" are no longer proprietary and the pharmacist should feel free to dispense the official articles, hydrous wool fat, sulphonemethane and sulphonethylmethane on prescriptions calling for these respective substances. It really makes but little difference to the physician whether hexamethylene at ten cents an ounce or urotropin at sixty cents an ounce is dispensed on his prescriptions, since he does not pay for the medicine. But the burden of the injustice falls first upon the pharmacist and finally, of course, upon the public.

Work of this kind by the Council on Pharmacy and Chemistry is of very great value to the individual pharmacist. It seems to me that it is the duty of pharmaceutical journals to bring these and similar facts to the attention of the pharmacists. If the journals themselves are not in position to make the investigations they can at least abstract the investigations made by the Council on Pharmacy and Chemistry. So far as I know but few pharmaceutical journals

have done so up to the present time. But I think that the time is coming when enterprising pharmacists will demand that the journals to which they subscribe shall give them the benefits of whatever studies that are being made upon medicines. The time is coming when glittering generalties and decorous editorial platitudes will no longer be accepted. Plain facts about the composition of medicines and the methods by which they are exploited are being told by the American Medical Association, by state boards of health and by other agencies. And this information is to be had for pharmacists if the pharmacists want it.

Wilbert has well said[5]:

"The growing influence of the Council on Pharmacy and Chemistry of the American Medical Association on the progress of pharmacy in the United States, is well illustrated by the nature and the importance of the references to the work of that Council as reported in *The Journal of the American Medical Association*. The American pharmacist who does not keep in touch with the progress of this work is missing an opportunity to prepare for the new pharmacy which is bound to result from the time and thought that is being devoted to materia medica and therapeutics by leading minds in medicine today. The repeated evidence that there is need for efficient control of all important active medicaments will, in time at least, lead to the recognition that this control can best be exercised at the time of dispensing, because, no matter how efficient an article may have been when made, if deteriorated, it may be not alone worthless, but even harmful.

"No one agency, in this or any other country, is doing more to call attention to the need for the efficient control of medicines and the desirability of developing a thorough knowledge of the possibilities, as well as the limitations of various drugs than is the Council on Pharmacy and Chemistry."

Perhaps a better idea of the work of the laboratory and of the Council may be gained by a study of a few examples taken from a large number of reports.

Waterbury's Cod Liver Oil Compound.—One of the early studies taken up by the Council was that of the so-called "tasteless" cod liver oil preparations. These were variously claimed to be the "active principles of cod liver oil," "extracts of cod liver oil," etc. Waterbury's Cod Liver Oil Compound was examined and found to contain no cod liver oil. Since the manufacturer was prosecuted by the federal government the product has been sold as "Waterbury's Compound," with the statement on the label that it is "made from cod liver oil."

The Council on Pharmacy and Chemistry has always deprecated the prescribing of "shotgun" mixtures, particularly those of a proprietary nature. The laboratory has shown the composition of many of these ready-made mixtures to be unreliable, examples of which are given:

Aromatic Digestive Tablets.—These are marketed by several pharmaceutical manufacturers. Among other ingredients these tablets are claimed to contain hydrochloric acid, definite amounts being claimed in some cases. An examination of six market specimens showed that three were not true to label. The product sold by Parke, Davis & Co., and that sold by Truax, Greene & Co., contained no hydrochloric acid either free or in protein combination, while the Sharp & Dohme brand contained only the merest traces.*

Bismuth, Opium and Phenol Tablets.—These are also marketed by several pharmaceutical manufacturers with definite statements as to the quantities of the several ingredients present. The phenol content in nine brands of these tablets

[5] A. J. P., 83, 566 (1911.)

*Such instances illustrate the futility of prescribing volatile chemicals in tablet combinations. No doubt the right proportions are incorporated at the time of manufacture, but soon volatilize, leaving the tablet below strength, or entirely lacking in that ingredient.—*Editor.*

was determined and in no case was the claimed amount present. Two years later other specimens of the same brands were purchased and examined and no marked improvement in the phenol content was noted. Specimens obtained directly from the manufacturers were not much better, although one brand contained more than the claimed amount of phenol.

Prescription Fakes.—The public is recognizing that the so-called "patent medicines" are for the most part fraudulent. In order to sell their wares in spite of this, enterpising manufacturers have put on the market a class of nostrums, in some ways simulating a physician's prescription, known as "fake prescriptions." The name of the nostrum appears in the form of pure reading matter disguised as a prescription, or as editorial advice in the "health and beauty" columns of the newspapers. The Association laboratory has examined a number of preparations advertised by this under-handed method and has found that they are usually composed of the simplest and cheapest ingredients. May-a-tone, one of these "fake prescriptions," is claimed to be the secret of the beautiful complexions of the Japanese women. It was shown by analysis to be composed of Epsom salt, 90 percent, and borax, 10 percent. Spurmax is another "fake prescription" which is claimed to be a complexion beautifier. It is composed of 100 percent of Epsom salt colored and perfumed.

Fake "Gall-Stones."—The "gall-stone" swindle is worked by giving the patient an enormous dose of some bland oil such as olive, cotton seed, etc., and following this by a strong, saline purge. This makes the patient pass numerous "masses of undigested soap," which are often of a greenish or yellowish-green color. He mistakes these for gall-stones. Fruitola and Mayr's Wonderful Stomach Remedy are two of these contemptible frauds. Fruitola is composed of olive oil and Seidlitz powders; Mayr's Wonderful Stomach Remedy is olive oil and Rochelle salts.

En-Ar-Co Oil.—This is sold as a cure for a great number of diseases in both man and animals. The nostrum was formerly called the "Wonderful Japanese Oil," but, since it is made in the United States, its name was changed to comply with the Food and Drugs Act. It is composed of about 90 percent of fusel oil and 10 percent of tincture of capsicum. The label on this diabolical mixture declares the presence of 5 percent of grain alcohol, but makes no mention of the presence of about eighteen times as much fusel oil, a substance which is about twenty times as poisonous. Our laws should require such dangerous mixtures as this to be labeled *"Poison."*

Asafetida vs. Jaroma.—Giving a fanciful name to a well-known drug and advertising it under preposterously extravagant claims is an old trick of the "patent medicine" manufacturer. Asafetida is exploited by this scheme under the name of Jaroma as a remedy for insomnia. Among other absurd claims the manufacturer states: "For the discovery of the Jaroma formula we are indebted to an eminent German Nerve Specialist." Here is the "Jaroma formula" as shown by analysis: Asafetida, 3 grains; gypsum, 2 grains; and red pepper, 1-10 grain.

Dangerous Hair Dyes.—Years ago many hair dyes contained salts of lead, silver or vanadium. Of late years these substances have been largely replaced by paraphenylene diamine, a substance which sometimes causes violent inflammation of the skin. Eau Sublime and Mrs. Potter's Walnut Tint Hair Stain

both contain this poisonous dye. Blindness, insanity and death have followed the use of hair dyes of this class.

Plantoxine.—Some "patent medicines" contain dangerous drugs; some contain well-known drugs; others contain no drugs at all. Plantoxine, which is recommended for hay fever, malaria and la grippe, evidently is one of the latter, since it consists of 100 percent of sugar of milk.

Thacher's Worm Syrup.—A physician reported the serious illness of a child after the mother had given it several doses of Thacher's Worm Syrup. The correspondent who did not see the patient until the fourth day after the ingestion of the first dose, diagnosed the case as one of santonin poisoning and began treatment. The child died. Examination of the nostrum showed that each dose of it contained about ⅔ grain of santonin. The quantity of the preparation recommended daily for a two-year-old child contained five times as much santonin as a careful physician would prescribe. Yet the manufacturer claimed that "Dr. Thacher's Worm Syrup is scientifically prepared from materials which are known to have a sure and safe effect on the child and to leave it in a healthy condition." Proprietary medicines containing santonin should be labeled *"Poison."*

Chichester's Diamond Brand Pills.—The sale of reputed abortifacients is becoming too common. The Australian Royal Commission, which was appointed a few years ago to investigate the nostrum evil, came to the conclusion that pharmaceutical manufacturing houses were largely responsible for the sale of such preparations. The report of this commission holds that ready-made emmenagogue pills are carried in stock by these houses and it is easy for irresponsible and criminally inclined persons to embark in the nefarious business of selling them. All that is necessary is for such traffickers to order so many "No. —" pills from a pharmaceutical manufacturing house and to use the necessary boxes and labels. A prescription called Chichester's Diamond Brand Pills is said to belong to this class. This preparation was formerly called "Chichester's English Pennyroyal Pills," but since it contains no pennyroyal and is not made in England, it is now called "Chichester's Diamond Brand Pills." A specimen of Chichester's Diamond Brand Pills" was examined in the laboratory of the American Medical Association and the pills were found to contain chiefly aloes and iron sulphate. It seems to me that such pharmacists as sell this class of preparations are shouldering a great moral responsibility. The pharmacist must know one of two things. Either these preparations will not do what they are supposed to do or they will. If they will not do what they are supposed to do he is guilty of selling a fraud. If they will do what they are supposed to do what is he guilty of?

Sulphur Dioxide Cure-Alls.—A weak solution of sulphuric acid and sulphur dioxide has been sold as a cure-all under a number of names such as "Liquozone," "Oxytonic," "Radam's Microbe Killer," etc. Each is a poison and each is a humbug.

Midol and Nurito.—Many headache remedies contain acetanilid or acetphenetidin. Since the Food and Drugs Act became effective the presence of these drugs must be declared on the labels of the preparations containing them and the public has justly learned to regard such remedies with suspicion. Recently several of these preparations have come on the market with the claim that they do not contain either acetanilid or acetphenetidin. Examination of two of them,

Midol and Nurito, showed that they contain pyramidon as their chief ingredient. While pyramidon is probably not as dangerous as either acetanilid or acetphenetidin its pharmacology is not well known. Until its dangers and limitations are better understood the public should be protected against its secret sale in "patent medicines."

Murine.—Analysis showed that the composition of Murine is essentially as follows: Borax, 3 ounces; berberine, trace and water, 1 gallon. The estimated cost of a gallon of Murine is five cents. The selling price of a gallon (at $1.00 per ounce) is $128.00.

Sanatogen.—Under this name a mixture of cottage cheese and sodium glycerophosphate is sold under the most ridiculously extravagant claims as a remedy for nearly all forms of nervous exhaustion. The manufacturers claim that "Sanatogen contains over 700 percent more tissue-building, life-sustaining nourishment than wheat flour." As a matter of fact 5 cents worth of wheat flour contains as much "tissue-building nourishment" as one dollar's worth of Sanatogen. One dollar will buy about 332 calories of energy in the form of Sanatogen. One dollar will buy 65,400 calories of energy in the form of wheat flour.

Vile-smelling Cure-alls.—An ill-smelling mixture made by boiling sulphur with slacked lime and water and called "Lime-sulphur wash" is largely used by stockmen and fruit growers to destroy vermin. Under such names as "Sulphurro," "Sulphume," "Golden Lotion," "Yellow Lotion," etc., the same mixture is sold for the treatment of a large number of ailments. Apparently its vile odor appeals to those who believe that any remedy which smells indescribably bad or tastes inexcreably nasty is "powerfully good medicine." One cent's worth of lime and five cents' worth of sulphur make a gallon of "Sulphume"—which retails for sixteen dollars.

The "Gas-Pipe" Cures.—A number of fraudulent devices consisting essentially of pieces of nickel-plated gas-pipe filled with inert material (sulphur, sand, clay, charcoal, etc.), and having flexible cords attached, are being sold at high prices as cures for disease. They have neither electrical, magnetic nor radioactive properties. They have no more curative value than empty tomato cans with strings tied to them.

Lung Germine.—This consumption-cure fake is sold by the Lung Germine Company of Jackson, Mich. This company sends out an advertising sheet which is calls the *Lung Germine Monthly Bulletin.* This contains testimonials from victims who are just beginning the Lung Germine "treatment." The company states that:

"The *Bulletin* does not publish letters or reports from cured patients."

Certainly not! It is pitiful that the poor victims who are taking Lung Germine do not more fully appreciate the reason. A two-ounce bottle of Lung Germine sells for five dollars. A specimen was analyzed in the Association laboratory with the following results: Alcohol, 44 percent; sulphuric acid, 4 percent; and water, 52 percent. It is obvious that such a mixture will not cure consumption. The American Medical Association has followed up a number of the testimonials which have been written for Lung Germine and has found that the most of the

writers who had tuberculosis are dead, and that those who are alive never had the disease.

The American Medical Association is endeavoring to aid the public in obtaining a broader conception than it has hitherto had of the great problems connected with public health matters. In pursuance of one phase of this policy the Association contributed an exhibit to the Exhibition on Health of the Fifteenth International Congress on Hygiene and Demography, which was held in the Red Cross building, Potomac Park, Washington, D. C., from September 16 to October 5, 1912. During this period the regular meetings of the International Congress on Hygiene and Demography, the American Public Health Association, the American Dental Association, the Association of Official Agricultural Chemists and other lesser associations, were held in Washington, so that a great number of public health officials, practicing physicians, dentists, and others interested in hygienic measures, were brought within reach of the health exhibit. No admission fee was charged and no account was taken of visitors to the Exhibition, but it is probable that it was seen by more than 100,000 persons. Exhibits were furnished by numerous bureaus and divisions of the several departments of the federal government, by the health departments of nearly every state and large city in the Union, by many charitable and philanthropic societies, and by industrial, educational and even religious corporations.

As noted above the American Medical Association had an exhibit which had been prepared in its propaganda department and its laboratory. This dealt with dangerous or fraudulent "patent-medicines" and with the possible exception of the exhibits by the American Federation of Sex Hygiene, attracted more attention than any other single exhibit in the entire exhibition. Pertinent facts concerning the composition of some of the most widely exploited medicinal humbugs and dangerous "patent medicines" were brought to the visitor's attention by means of placards. The general worthlessness of testimonials was shown and the shameful uses to which "confidential letters" are put by the quacks who receive them, were told by picture and motto. Examples were given showing how the Food and Drugs act in certain ways protects the public against habit forming drugs, and further examples were given showing the limitations of the act in not protecting the public against the presence of many dangerous ingredients in nostrums.

The American Medical Association believes that the public, the pharmaceutical profession and the medical profession must all work together, to abolish the public drinking cup, to exterminate flies and mosquitoes, to eliminate the adulteration of foods, to prevent the pollution of water supplies, to secure adequate disposal of garbage, to insure the proper cleaning of the streets in cities, and, in short, to perform any other tasks which tend to raise the standard of health and lower the death-rate of our citizens.

Reports of A. Ph. A. Committees

REPORT OF COMMITTEE ON UNOFFICIAL STANDARDS.

The following portion of the report of the Committee on Unofficial Standards relates to certain crude drugs and chemicals suggested for inclusion in the next revision of the National Formulary, and by order of the Council is published in the JOURNAL in order to afford opportunity for discussion before the standards proposed are finally adopted.

Manufacturers, importers, analysts, and others interested in any of the proposed standards, are requested to send their criticisms and comments to the chairman of the committee, Geo. M. Beringer, 501 Federal St., Camden, N. J.

APPROVED MONOGRAPHS SUBMITTED AS STANDARDS FOR UNOFFICIAL DRUGS AND CHEMICAL PRODUCTS.

(Continued from p. 255.)

COPTIS.

Goldthread.

1. The dried plant *Coptis trifolia* (Linné), Salisb. (*Fam. Ranunculaceae*).

2. In loose matted masses consisting of long, much branched rhizomes and their small roots, together with the leaves. Rhizomes orange or golden yellow; leaves evergreen, long and slenderly petioled, trifoliate; the segments broadly obovate-cuneate, crenately lobed and toothed with sharp-pointed teeth, prominently veined, smooth, coriaceous, dark green and shining but often drying to a dull brownish hue; flowers, if present, small, solitary, terminating slender scapes, sepals 5-7, oblong, obtuse, deciduous; petals 5-6, pale yellow, small, clubshaped; stamens numerous; odor faint, taste purely bitter without astringency.

COUMARINUM.

Coumarin.

$C_9H_6O_2$=146.048.

1. The anhydride of ortho-oxycinnamic acid [$C_6H_4(CH)_2OCO$], occurring naturally in tonka, melilot and other plants, or prepared artificially.

2. Colorless, prismatic crystals, having a characteristic fragrant odor and a bitter, aromatic and burning taste.

3. Sparingly soluble in cold, more readily in hot water; freely soluble in alcohol, ether and chloroform, also soluble in fixed and volatile oils.

4. When heated to between 67° and 68° C. it melts and at about 100° C. it commences to sublime; at 290° to 291° C. it boils without decomposition.

5. It dissolves in an aqueous solution of sodium or potassium hydroxide with a yellow color forming sodium or potassium coumarinate from which carbon dioxide precipitates courmarin. In hot concentrated sodium or potassium hydroxide solution it forms sodium or potassium coumarate from which hydrochloric acid precipitates the Coumarin in colorless needles.

6. A moderately strong aqueous solution of coumarin forms on addition of iodine T. S. a precipitate which is at first brown and flocculent and afterwards on shaking clots together to form a dark green curdy mass, leaving the liquid perfectly clear (distinction from vanillin).

7. Coumarin is not removed from ether solution by ammonia water (distinction from vanillin).

8. On warming 0.1 gm. of Coumarin with concentrated alcoholic solution of sodium hydroxide, adding chloroform and again warming, it should not give an odor of phenylisocyanide (absence of acetanilid).

DAMIANA.

Damiana.

1. The leaves of *Turnera diffusa*, Willd., or of *T. aphrodisiaca*, Ward. (*Fam. Turneraceae*), containing not more than 10 percent of the stems of the same plants.

2. Leaves obovate to laneolate, 10 to 25 mm. long by 4 to 10 mm. wide, shortly petiolate, obtuse or acute at apex, and with a short cuneate base, sharply 2 to 10 toothed on each side, the veins ascending, generally strong, straight and simple and running to the sinuses of the teeth, but sometimes branched and sending the branches into the teeth, the upper surface smooth and pale green, the lower glabrous or with a few hairs on the ribs (*T. aphrodisiaca*) to densely tomentose all over (*T. diffusa*).

3. Intermixed with the leaves there is generally to be found numerous usually reddish twigs, the young tips and buds of which are grayish with appressed pubescence (*T. aphrodisiaca*) or white with facculent wool (*T. diffusa*). Flower buds, yellowish flowers, and globose pods are generally present.

4. Odor aromatic; taste characteristic, aromatic and resinous.

DEXTRINUM.

Yellow Dextrin.

1. Starch Gum (British Gum, Alsace Gum).

A mixture of soluble carbohydrates, Amylodextrin, Achroodextrin, Erythrodextrin and Maltodextrin, resulting from the incomplete hydrolysis of starch by the roasting process.

2. Transparent, yellowish lumps or granules or a light yellow, glistening, non-hygroscopic, amorphous powder with a peculiar and characteristic harsh feel, possessing a peculiar, somewhat disagreeable odor and a sweetish taste.

3. Soluble in about equal parts of water, forming a thick viscid solution, neutral to litmus paper; insoluble in alcohol, ether and chloroform, but soluble in glycerin.

4. A fresh solution, prepared cold, will be colored wine-red, but not blue on the addition of iodine T. S.

5. Alkaline cupric tartrate V. S. is not changed by a solution of dextrin when cold, but is reduced on boiling.

6. Not more than 5 percent should be soluble in boiling alcohol (limit of dextrose). Upon drying not more than 10 percent should be lost (limit of moisture), and upon incineration the ash should not be more than 0.5 percent.

7. A solution of Dextrin in distilled water (1 : 20) should not be immediately precipitated by lead acetate T. S. or basic lead acetate T. S., but after the addition of a few drops of ammonia water precipitation occurs (absence of and difference from gums).

8. A solution of Dextrin should not be changed by hydrogen sulphide T. S., even after supersaturating with ammonia water (absence of metals).

DEXTRINUM ALBUM.

White Dextrin (Soluble Starch).

1. A mixture of soluble carbohydrates, Amylodextrin, Achroodextrin, Erythrodextrin and Maltodextrin together with a variable amount of unconverted starch, resulting from the incomplete hydrolysis of starch by the action of acid.

2. A white, glistening, non-hygroscopic, amorphous powder with a peculiar and characteristic harsh feel, odorless and having a sweetish taste.

3. Only partly soluble in water, but completely soluble upon heating. The solution prepared cold is colored wine-red by iodine T. S. and a solution prepared warm is colored blue.

4. Besides the other characteristics and tests given under Dextrinum, white dextrin should also conform to the following test for the absence of oxalic acid:

A freshly-prepared cold aqueous solution should not become turbid by the addition of calcium chloride T. S. or calcium hydroxide T. S.

DULCAMARA.

Bittersweet.

1. The dried young stems and branches of *Solanum Dulcamara*, Linné (*Fam. Solanaceae*).

2. In short sections about 5 mm. or less thick, cylindriaceous, somewhat angular, longitudinally striate, more or less warty, and usually hollow in the center, the thin bark externally pale greenish, or light greenish-brown and glabrous, marked with alternate leaf scars, internally green, the greenish or yellowish wood forming one or two concentric rings; odor slight; taste bitter, afterwards sweet.

3. The ash should not exceed 6 percent.

DRIED EGG ALBUMIN.

(Dried Egg White.)

1. The white of the egg of *Gallus bankiva* var. *domestica* (*Order Gallinae*), and of other fowl, deprived of its moisture by desiccation at low temperature. It should be free from preservative and should be kept in closed containers in cool dry place.

2. Colorless, grayish or yellowish, transparent or translucent hard and brittle scales or fragments, almost odorless and having only a faint saline taste, and when ignited emitting a characteristic odor resembling burning feathers.

3. Slowly, but not completely, soluble in water, forming a neutral or slightly acid viscid solution which readily putrefies and upon heating to about 75° C. becomes turbid from the coagulation of the albumin. The solubility in water is much accelerated by the presence of alkaline carbonates and phosphates.

Insoluble in alcohol, chloroform or ether and in dried form may be heated to 100° C. without becoming insoluble in water.

4. The aqueous solution is laevogyrate, the angle of rotation being about —38°.

5. Upon incineration, the ash should not be more than 5 percent.

6. The aqueous solution (1 in 10) of Egg Albumin is coagulated by the addition of an equal volume of liquefied phenol. Sodium chloride does not precipitate the aqueous solution (1 in 10) except in the presence of acetic acid. Solutions of soluble salts of iron, copper, mercury, silver and lead produce precipitates when added to the aqueous solution (1 in 10), as does also a solution of tannic acid.

7. The aqueous solution (1 in 10) should respond to the following tests: it is readily precipitated by hydrochloric acid, the precipitate is insoluble in excess of acid; it is coagulated and quickly precipitated by alcohol in excess; on shaking with an equal volume of ether it is coagulated. (Difference from Blood Albumin.)

FERRI GLYCEROPHOSPHAS.

Ferric Glycerophosphate. (Ferric Glycerinophosphate.)

1. Containing a somewhat variable quantity of ferric glycerophosphate [$Fe_2(C_3H_7O_6P)_3$= 621.86] corresponing to 14 to 16 percent of metallic iron. It should be kept in well-stoppered bottles, protected from light.

2. Yellowish-green, transparent, amorphous scales or a greenish-yellow powder, odorless and tasteless. Slowly soluble in about 2 parts of water at 25°; insoluble in alcohol. An aqueous solution is acid to litmus paper and becomes turbid when heated.

3. An aqueous solution of the salt (1 in 20) is colored dark blue by potassium ferrocyanide; on further addition of hydrochloric acid a dark blue precipitate is produced.

4. On heating a powdered mixture of about 0.1 gm. of the salt with about 0.5 gm. of potassium bisulphate, pungent vapors of acrolein will be evolved.

5. On incineration, from 47 to 49 percent of a red brown residue should remain, which should not be alkaline to moistened litmus paper.

6. Not more than a slight yellow turbidity should be produced at once on mixing 5 cc. of an aqueous solution of the salt (1 in 50) with 10 cc. of ammonium molybdate T. S., on standing or on warming a yellow precipitate will be formed. (Limit of phosphate.)

7. An aqueous solution (1 in 50) acidulated with hydrochloric acid, should not become more than slightly turbid on the addition of barium chloride T. S. (limit of sulphate).

Another portion of this aqueous solution, acidulated with nitric acid, should not become more than slightly turbid on addition of silver nitrate T. S. (limit of chloride).

8. Dissolve about 0.5 gm. of the salt, accurately weighed, in 50 cc. of water, in a 100 cc. glass-stoppered flask. Add 5 cc. of hydrochloric acid and about 3 gm. of potassium iodide. After solution is complete, let the mixture stand 1 hour at room temperature in the stoppered flask, then titrate the liberated iodine with tenth-normal sodium thiosulphate V. S., using starch solution as indicator, each cc. corresponds to 0.005585 gm. of iron.

FOLIA FARFARAE.

Coltsfoot Leaves. (Folia Tussilaginis).

1. The dried leaves of *Tussilago Farfara*, Linné (*Fam. Compositae*), with not more than 5 percent of the rhizome and roots.

2. Petioles long, pubescent; blades very brittle, nearly orbicular or broadly ovate-reniform, 8-15 cm. long and nearly as broad, deeply cordate at the base, angulately lobed and dentate with red-brown teeth, palmately 5 to 9 veined; young leaves white floccose all over, but the upper surface soon dark green

and nearly smooth, the remaining densely white floccose.

3. Taste mucilaginous, faintly herbaceous, bitter; odor indistinct.

4. Ash should not exceed 20 percent.

GUTTA PERCHA.

Gutta Percha.

1. Gutta Percha is a coagulated, milky exudate of various trees, principally of the genus *Palaquium* (*Fam. Sapotaceae*).

2. A reddish, marbled mass, often containing sand, pieces of wood, bark, etc., absolutely insoluble in water. When purified it occurs as a white, hard, tough mass, usually molded into the form of sticks.

3. It should be soluble in chloroform, carbon disulphide, petroleum ether and turpentine, leaving not more than 10 percent residue.

4. It is slightly elastic at ordinary temperature, becomes pliable at 25 to 30° C., and gradually softens on heating, becoming quite plastic at 69° C.

5. If one gram of gutta percha be boiled for one hour with 20 cc. of absolute alcohol, not more than 0.5 gm. should go into solution.

6. If one gram of gutta percha be carefully ignited in a porcelain crucible, the residue should weigh not more than 0.05 grams.

7. When exposed to air and sunlight, gutta percha absorbs oxygen and becomes brittle. It should therefore be preserved under water.

HYDRASTINAE HYDROCHLORIDUM.

Hydrastine Hydrochloride.

1. The hydrochloride of the alkaloid Hydrastine [$C_{21}H_{21}O_6NHCl=419.65$]. The salt is very hygroscopic and should be kept in well-stoppered amber-colored bottles.

2. White to creamy white, crystalline power, odorless, taste very bitter; easily soluble in water and alcohol, scarcely soluble in ether or chloroform. The solution of the salt is colorless and shows a neutral to faintly acid reaction to litmus paper.

3. It melts between 116°-117° C.

When ignited it leaves no residue.

4. When dissolved in 60 percent sulphuric acid and heated the liquid assumes a dark violet color.

5. Sulphuric acid containing a trace of potassium dichromate dissolves the salt with a red color, which changes to brown.

6. Nitric acid dissolves the salt, producing a yellow color.

An aqueous solution of hydrastine hydrochloride yields a yellow precipitate on the addition of potassium dichromate T. S. or potassium ferrocyanide T. S.; the precipitates are soluble in excess of the reagent.

8. In aqueous solution, mercury bichloride T. S. produces a white precipitate, soluble when heated.

9. A solution of about 0.1 gm. of the salt in 10 cc. of diluted sulphuric acid develops a blue fluorescence when a solution of potassium permanganate is added, but no fluorescence should be visible before addition of the permanganate (hydrastinine).

An aqueous solution (1 in 20) should not be reddened by the addition of chlorine water (berberine).

IRIS.

Blue Flag.

1. The dried rhizome and roots of *Iris versicolor*, Linné (*Fam. Iridaceae*).

2. Rhizome of horizontal growth, frequently branched, 5 to 10 cm. long, 1 to 2 cm. thick, the older portion cylindrical, the younger somewhat vertically flattened and terminating in a circular scar; annulate caused by the leaf-sheaths, grayish-brown to dark-brown; internally purplish; roots long and simple, more numerous at the broader end; odor slight; taste acrid and nauseous.

MAGNESII CHLORIDUM.

Magnesium Chloride.

1. It should contain not less than 95 percent of pure magnesium chloride [$Mg.Cl_2+6H_2O=203.33$]. It should be kept in air-tight containers.

2. Colorless, transparent crystals, or white translucent pieces; deliquescent in moist air.

3. Soluble in about 0.6 part of water and also readily soluble in alcohol.

4. An aqueous solution of the salt, acidulated with nitric acid, yields a white precipitate on the addition of silver nitrate T. S.

5. A mixture of 10 cc. of the aqueous solution (1-20) with 10 cc. of ammonium chloride T. S. rendered slightly alkaline with ammonia water, yields a white precipitate on the addition of sodium phosphate T. S.

6. One gm. should dissolve in 10 cc. of alcohol 85% (by vol.), yielding a clear or nearly clear solution and the insoluble residue should not exceed 1 percent (*limit of substances insoluble in alcohol.*)

7. On adding 1 cc. of potassium sulphate T. S. to 10 cc. of the aqueous solution (1-20)

slightly acidulated with hydrochloric acid, no turbidity should result (absence of barium).

8. An aqueous solution (1 in 200), acidulated with hydrochloric acid, should not be reddened by potassium sulphocyanate T. S. (absence of iron).

9. An aqueous solution of the salt (1-20) should not respond to the U. S. P. VIII Time Limit Test for *heavy metals.*

10. Five cc. of the aqueous solution (1-10) should not respond to the U. S. P. VIII Modified Gutzeit's Test for *Arsenic.*

11. A mixture of 10 cc. of aqueous solution of the salt (1-20), 10 cc. of ammonium chloride T. S. and 5 cc. of ammonia water should not be rendered turbid upon the addition of ammonium oxalate T. S. (absence of calcium).

12. Dissolve about 0.3 gm. of the salt, accurately weighed, in 50 cc. of distilled water, acidulated with a little nitric acid, add an excess of decinormal silver nitrate V. S. and titrate the excess of silver nitrate with decinormal potassium sulphocyanate V. S., using ferric ammonium sulphate as indicator. Each cc. of decinormal silver nitrate V. S. corresponds to 0.01017 gm. of magnesium chloride ($MgCl_2+6H_2O$).

MANGANI GLYCEROPHOSPHAS.

Manganous Glycerophosphate.

1. A mixture consisting of 70 to 75 percent of Manganous Glycerophosphate [$MnC_3H_7O_6P$=224.98] and 25 to 30 percent of citric acid.

2. Yellowish or pinkish-white powder, odorless, and having an acid taste. Soluble in about 4 parts of water at 25°; alcohol dissolves the citric acid, leaving a residue which is nearly insoluble in water, aqueous solutions are strongly acid to litmus and become turbid on heating.

3. An aqueous solution of the salt, on addition of an excess of ammonium sulphide T. S. gives, on standing, a salmon-colored precipitate, soluble in acetic acid.

4. On heating a powdered mixture of about 0.1 gm. of the salt and about 0.5 gm. of potassium bisulphate, pungent vapors of acrolein will be evolved.

5. No yellow turbidity should be immediately produced on mixing 5 cc. of an aqueous solution of the salt (1 in 20) with 10 cc. of ammonium molybdate T. S., but on prolonged standing or on heating a yellow precipitate will be formed (limit of phosphate).

6. The aqueous solution (1 in 20) should not be rendered more than slightly turbid by barium chloride or silver nitrate, after acidulation with nitric acid, nor should it respond to the Time Limit Test for heavy metals (U. S. P. VIII), after acidulation with hydrochloric acid, addition of ammonia water to be omitted.

7. Ten cc. of an aqueous solution (1 in 200), boiled after addition of a few drops of hydrochloric acid and chlorine water, should not be colored reddish by potassium sulphocyanate T. S.

8. Dissolve 0.4 gm. to 0.5 gm. of the salt accurately weighed in 100 cc. distilled water, add 10 cc. of ammonia water and 5 cc. of ammonium sulphide T. S. and boil the mixture until the precipitate formed has become a dirty green. Allow this to settle, then transfer to a filter and wash with hot water containing a few drops of ammonium sulphide T. S. Dry the filter and incinerate, first at a low temperature and then at strong red heat, in an open crucible until the weight is constant. The residue of mangano-manganic oxide (Mn_3O_4) so obtained should correspond to 23.7 to 25.4 percent of the weight of the salt taken.

MANGANI ET SODII CITRATIS.

Manganese and Sodium Citrates.

1. It should contain, when rendered anhydrous at 120° C., from 49 to 51 percent of Maganous Citrate [$Mn_3(C_6H_5O_7)_2$=542.87], and from 48 to 51 percent of Sodium Citrate [$Na_3(C_6H_5O_7$=258.04] as determined by the methods given below, and not more than 1 percent of impurities.

2. In yellowish or pinkish white powder or transparent scales, odorless, having a slight bitter and astringent taste. Permanent in the air.

3. Slowly soluble in about 4 parts of cold water; slightly more soluble in boiling water; nearly insoluble in alcohol or ether.

4. An aqueous solution of the salt (1-20) is neutral or slightly alkaline to litmus paper, but is not reddened by phenolphthalein T. S. The aqueous solution (1-10) after addition of slight excess of ammonia water yields with ammonium sulphide T. S. on warming a salmon-colored precipitate.

5. When strongly heated, the salt chars and finally leaves a green residue, consisting of sodium manganate, manganese oxides and

sodium carbonate, which imparts an intense yellow color to a non-luminous flame.

6. If 10 cc. of a 5 percent solution of the salt be slightly acidulated with acetic acid and mixed with 2 cc. of calcium chloride T. S. it should remain clear while cold, but yield a white, crystalline precipitate when heated to boiling.

7. Ten cc. of the aqueous solution (1-20) should not respond to the time limit test of the U. S. P. VIII for heavy metals, addition of ammonia water to be omitted.

8. Portions of 10 cc. each of an aqueous solution (1 in 200) should answer the following requirements: acidulated with hydrochloric acid it should not be more than slightly reddened by potassium sulphocyanate T. S. (limit of iron); and should not be rendered turbid at once by barium chloride T. S. (limit of sulphates); and acidulated with nitric acid it should show not more than an opalescence with silver nitrate T. S. (limit of chlorides).

9. If about 0.5 gm. of the salt be mixed with 5 cc. of sulphuric acid in a porcelain dish previously rinsed with sulphuric acid, the mixture protected from dust, and heated for 15 minutes on a water-bath, no color darker than yellow should develop (tartrates and other readily carbonizable substances).

10. Weigh accurately about 1 gm. of the salt previously dried at 120° C., carbonize it at a temperature not exceeding a low red heat and extract the residue with boiling water until the washings no longer have an alkaline reaction. Titrate the mixed filtrate and washings with half normal sulphuric acid V. S.; using methyl orange as indicator. Each cc. of half normal sulphuric acid corresponds to 0.043 gm. of $Na_3C_6H_5O_7$.

11. Dry the filter, and contents, from the preceding test and heat it strongly in an open crucible until the weight remains constant. The weight of mangano-manganic oxide (Mn_3O_4) obtained after subtraction of the weight of the filter ash, should be from 20.65 to 21.1 percent of the weight of the salt taken, corresponding to 49 to 51 percent of manganous citrate.

MENISPERMUM.

Yellow Parilla. (Canadian Moonseed.)

1. The dried rhizome and roots of *Menispermum Canadense*, Linné (*Fam. Menispermaceae*).

2. Occurring in pieces from a decimeter to one or more meters in length and about 5 mm. in thickness, externally brown to yellowish-brown, internally yellowish, the surface finely wrinkled longitudinally, the nodes conspicuous; fracture tough and fibrous; bark rather thick; xylem broad, porous and usually longer on the lower side, the pith distinct; nearly odorless but with a bitter taste; roots very thin, brittle, much branched.

MYRICA.

Myrica Bark. (Bayberry Bark.)

1. The dried bark of the root of *Myrica cerifera*, Linné (*Fam. Myricaceae*), with not more than 5 percent of adhering wood.

2. In quills or quilled pieces or strips, of variable length and up to 20 mm. in breadth, the bark rarely exceeding 2 mm. in thickness; outer surface varying from dark-brown to gray-brown, occasionally slightly silvery, somewhat lustrous, at least in patches, bearing occasional warts or slight transverse ridges, the periderm frequently much wrinkled; inner surface deep rusty-brown, finely short-striated and roughish; fracture short and weak, light brown in the outer, yellowish brown in the inner layer; odor characteristic and rather disagreeable; taste astringent, mildly bitter and slightly acrid.

PLUMBI CARBONAS.

Lead Carbonate. (White Lead.)

1. A mixture of lead carbonate and hydroxide approximately $(PbCO_3)_2Pb(OH)_2$= 775.31.

2. A heavy, white, opaque powder, or a pulverulent mass, without odor or taste. Permanent in the air.

3. Insoluble in water or alcohol, but soluble in acetic or diluted nitric acid, with effervescence.

3. When strongly heated, it turns yellow without charring, and, if heated in contact with charcoal, it is reduced to metallic lead.

4. If 2 gm. of the salt be dissolved in a mixture of 2 cc. of nitric acid and 10 cc. of water, it should not leave more than 0.02 gm. of residue.

5. This solution yields a black precipitate with hydrogen sulphide T. S., a yellow one with potassium iodide T. S., and a white one with diluted sulphuric acid.

6. On completely precipitating 10 cc. of the solution with hydrogen sulphide T. S., the filtrate should not leave more than 0.02 gm. residue on evaporating.

7. If 1 gm. of the salt be strongly ignited, in a porcelain crucible, it should leave a residue of lead oxide weighing not less than 0.85 gm.

PLUMBI OXIDUM RUBRUM.
Red Lead.

Pb_3O_4=685.3.

1. Lead orthoplumbate, Pb_2PbO_4, containing usually some unconverted lead monoxide, PbO, and capable of yielding not less than 31 percent of lead dioxide, PbO_2.

2. A heavy orange-red powder, without odor or taste. On exposure to the air it slowly absorbs moisture and carbon dioxide.

3. Almost insoluble in water, insoluble in alcohol, but soluble in excess of glacial acetic acid; also soluble in lactic acid with evolution of carbon dioxide and the odor of acetaldehyde.

4. When heated in a porcelain crucible, red lead changes through red and violet to a blackish tint, regaining its original color on cooling; but if the heating be continued, it slowly dissociates into lead monoxide and oxygen. When heated in contact with charcoal, it is reduced to metallic lead.

5. If 5 gm. of red lead be treated with 50 cc. of 10% nitric acid, it should react with but little effervescence (limit of carbonate), and without the development of the odor of nitrous acid (absence of lead), leaving a brown insoluble residue of lead dioxide, PbO_2, which, upon the addition of solution of hydrogen dioxide, should dissolve with evolution of oxygen to a colorless solution, leaving, after boiling 15 to 20 minutes and cooling, a residue weighing not more than 0.2 gm. (limit of silicates, lead sulphate, etc.).

6. The solution obtained in the last test yields, with hydrogen sulphide T. S. a black precipitate, with potassium iodide T. S. a yellow one, and with diluted sulphuric acid a white precipitate, the latter two being soluble in a strong solution of sodium hydroxide.

7. If from the solution in diluted nitric acid, obtained by the aid of hydrogen dioxide, the lead be precipitated with sulphuric acid, the filtrate, after the addition of an excess of ammonia water, be diluted to 200 cc., a portion should not assume more than a slight bluish tint (limit of copper), nor yield more than traces of a reddish brown precipitate (limit of iron).

8. If a mixture of 1 gm. of red lead with 50 cc. of water be heated to boiling, and, after cooling, filtered, the filtrate should be colorless, and should not show more than a faintly alkaline reaction with red litmus paper, and when evaporated to dryness, should not leave more than 0.01 gm. of residue (limit of soluble impurities).

9. If 1 gm. of red lead be added to a cool solution of 40 gm. of crystallized sodium acetate and 2 gm. of potassium iodide in 50 cc. of 50% acetic acid, and the mixture well stirred until all red lead has dissolved, the solution, on titration, should require not less than 25.93 cc. of tenth-normal sodium thiosulphate V. S. (equivalent of 31 percent lead dioxide).

ENTERPRISE PAYS.

When your employer finds that you have a lot of enterprise, that you are trying to learn as much about his business as he knows himself, he will begin to think that you are made of promotion material. But if he sees that your ambition is just to get your salary and have as easy a time as you can, you will never attract his attention, except for a possible blacklist. An employer wants no deadwood around him. He wants live wires. He wants employes who have ambition enough to be willing to pay the price for promotion.

The first thing the successful employe must realize is that he is really working for himself. Every bit of work he does heartily, honestly, thoroughly, is developing his own capacity, making him a bigger, broader, more capable man. If he robs his employer of time or energy, he is robbing himself more, because he is practicing dishonesty, and cultivating a weakness that will slowly undermine his character and destroy his reputation for trustworthiness.

The men who have done great things in the world have been prodigious workers, particularly during the time when they were struggling to establish themselves in life.

Young men who are sticklers for hours, who are afraid of working overtime, who want to leave the office on the minute or a little before, who are always a little late in the morning, or who take their employer's time for their own personal uses—such employes never get very far.—*Orison Swett Marden.*

Report on the Progress of Pharmacy

For the Year 1912

(Ninth Installment.)

"Siloxide": A New Kind of Glass.—"Siloxide" is a name which has been given to glass obtained by fusing pure anhydrous silica with oxides of elements of the silicon-carbon group, as titanium dioxide or zirconium oxide. The new glass, which is now being manufactured at Frankfurt, a/M, Germany, is said to be formed by the solution of these refractory oxides of an acid character in silicic acid, and it is said to be more easily worked than pure quartz glass—in fact, it can be worked by the ordinary methods employed in glass manufacture. The two kinds are distinguished as "Z-siloxide," or Zirconium glass, and "T-siloxide," or titanium glass. While these are said to lack the silky lustre of quartz glass, it is stated by Thomas that they possess distinct advantages over the latter in respect to strength, resistance to devitrification, and resistance to the action of alkalies. The best Z-siloxide with respect to strength is said to contain 1% of zirconia, while that containing 0.5% has the most satisfactory thermal properties. It is said that zirconium glass has a softening point not much different from that of quartz glass, but that it resists deformation better at high temperatures because of its greater viscosity. The T-siloxide is said to be even superior to Z-siloxide with respect to thermal properties—to be more satisfactory when temperatures up to 1500° C. are to be used—while otherwise its properties are the same as those of Z-siloxide.—Chem. News, July 26, 1912, 46.

"Siloxyd" Glass: Advantages and Superiority Over Quartz Glass for Chemical Apparatus.—A recent U. S. Consular Report from Zürich, Switzerland, gives some interesting particulars respecting the discovery and utility of "Siloxyd" Glass. The raw material from which the glass is produced is washed quartz-sand, containing 95% of silicic acid, which is melted in an electric furnace in which the temperature rises to 2000° F. All the agencies known to the glass-working industry, including air, steam, gases, etc., can be applied, and it is now possible to melt and mould into almost any desired form as much as fifty pounds of quartz. A remarkable quality of the quartz produced by the thermoelectric process is its resistance to acids. Even boiling acid, with the possible exception of hydrofluoric or phosphoric, will not corrode it. Moreover, it has the advantage of a coefficient of expansion about one-seventeenth that of the best glass suitable for chemical utensils and apparatus. The chief objection to pure quartz glass as a material for apparatus used in the chemical industry is that it becomes brittle at high temperatures, passing from the amorphous to the crystalline state with a diminution of strength. By the new process discovered by Dr. Wolf-Burkhard, which consists in combining with the raw quartz certain metallic oxides difficult to fuse, the resulting mixture gives on fusion a transparent glassy mass which fuses at a temperature of 1750°. The advantages claimed for this material over ordinary quartz glass are that its strength is 30 to 50 percent greater than "quartz gut," tested by bending, and 10 to 30 percent more tested by pressure, and that it is less brittle, the devitrification being only about half that of quartz glass. The superior advantages claimed for "siloxyd" glass give to this new material a wide range of usefulness, and especially for apparatus used in the acid industry, most of which have heretofore been made from platinum.—Chem. News, Aug. 23, 1912, 91; from Chem. Eng., XV, No. 5.

"Siloxide" Glass: External Properties, Color, Finish, etc.—In a paper describing experiments undertaken with a view to determining how the most important properties of the "siloxide" glasses can be compared with those of quartz glass, Dr. Felix Thomas describes the external properties, color, finish, etc., of zirconium and titanium "Siloxide."

Zircon Oxide-Silicic Acid (Z-Siloxide;

Zircon Glass). The superficial appearance of zircon glass tubes is not as alluring as that of the English "vitreosil" (Quartz Glass) tubes, with their silky surface, but this is the only point in which zircon glass falls short of "vitreosil." They have a dull finish and, if rich in zircon, a pale yellow color, and appear to be denser and firmer than the ordinary quartz glass product.

Titanium Oxide-Silicic Acid (T-Siloxide; Titan Glass). The products have a bluish color, varying from light blue to dark according to the quantity of titanium added. In the case of a small percentage of titanium the glass, if in thinnish flakes, compares quite favorably with quartz glass in point of transparency; in case of a greater percentage of titanium the glass is of course far less transparent, a circumstance which, however, is of no consequence for most purposes.—Chem. News, Sept. 6 and 27, 1913, 119 and 156; from Chem. Ztg., 1912, No. 4.

Thallium: Marked Depilatory Property.—R. Sabouraud calls attention to some singular properties of Thallium which, in a certain case, five days after a dose of 0.02 gm. of the acetate, produced total baldness, and growth of hair was retarded for about six months. This property of thallium was first made use of by the author to destroy the hair *en masse* in the treatment of ringworm, using an ointment containing thallium, but the general toxic effects which developed showed that the medicament was a dangerous one. On the other hand, the author was able to dispel successfully the troublesome down which gave annoyance to young women. In such cases, the surface to be treated was always small, so that there was little fear of accident. The formula he recommends is as follows:

Thallium Acetate.....	0.30 gm.
Zinc Oxide.....	2.50 gm.
Soft Paraffin.....	20.00 gm.
Lanolin	5.00 gm.
Rose Water.....	5.00 gm.

A small piece of this ointment, no larger than the bulk of one or two grains of wheat, is applied to the lip every night. This suffices to bring about the destruction of the hair or down. In those cases where the hair is brown, and about one centimeter long, its disappearance is rapid. It is naturally replaced, however, by fresh growth, but the regular use of the ointment ensures its remaining short and almost invisible.—Pharm. Journ. and Pharmacist, June 22, 1912, 807; from La Chirurgue, Feb. 16, 1912.

Iodic Acid: Preparation for Carbonic Monoxide Determinations.—M. Niclou recommends the following modification of Stas's process for the preparation of iodic acid, suitable for the determination of carbon monoxide, the latter depending upon its oxidation with iodic acid, an equivalent amount of iodine being set free: 15 gm. of powdered resublimed iodine are added gradually to 70 cc. of fuming nitric acid (sp. gr. 1.515 to 1.52) contained in a 150 cc. flask, and heated on the water-bath to 70°-73°; the temperature is raised gradually to 80°-85°, and the heating continued thirty to forty-five minutes. The color disappears and a heavy white precipitate of iodic acid is formed, which is purified by repeated crystallization from water, the yield by this modification being 84.2%. The inferior yield (18%) by the original method of Stas is due to the use of weaker nitric acid.—Compt. rend., 154 (1912), 1166.

Nitrocellulose (Fulmicotton): New Method of Preparation.—A. Dufay describes a new method of preparing nitrocellulose which depends on the use of a mixture of nitric anhydride and monohydrated nitric acid, or a mixture of $16.5N_2O_5$ and sufficient HNO_3 to immerse the mass of cotton in it. The object of this method of preparation is to avoid the use of monohydrated sulphuric acid in the manufacture of nitrocellulose, and to replace it by a known quantity of nitric anhydride, corresponding to the formula of the "fulmicotton" which is to be obtained. The reason for this substitution is explained by the following equations:

$2N+5O+H_2=2HNO_3$ (dissolved).. 28.6 cal.
$H_2SO_4+Water=H_2SO_4$ (dissolved). 17.9 cal.

Since the reaction takes place in a nitric medium there is no fear of secondary reactions; and as the weight of cotton in the dry state and the exact degree of acidity of the bath are known the reaction can be followed. The dry cotton is weighed before and after nitration; the acid bath is titrated before and after the immersion, the second titration being referred to the final volume or weight; and the final washing is performed in a known quantity of distilled water, so that the total amount of acid can be determined. The nitric anhydride is prepared by the method of Weber, perfected by Berthelot, by

distilling a mixture of fuming nitric acid and phosphoric anhydride, the author finding that the process can be carried out on a commercial scale in a retort of enamelled iron which he describes, and the freezing machine required, as well as a sufficiently large apparatus to make the phosphoric anhydride, may be made of the same material. It is an advantage also that in this process the same acid bath may be used by replenishing it after each soaking with sufficient N_2O_5, calculated from that consumed, and of HNO_3 to completely cover the cotton.—Chem. News, Nov. 1, 1912, 211.

Soluble Starch: A New Form Obtained by the Action of Acetone.—A. Fernbach has studied the effects of various dehydrating agents on starch as a means of converting it into soluble form, and finds that this can be done by means of pure acetone. A one or two percent suspension of commercial potato starch is poured into a large excess of pure acetone and shaken vigorously; a flocculent precipitate is thus obtained, which, when collected on a Buchner funnel, transferred to a mortar, triturated with acetone, and dried *in vacuo*, is a perfectly white mass, pulverulent and very light, and soluble not only in hot water but in cold water; 1 gm. dissolved easily in 100 cc. of cold water leaving only an infinitesimally small insoluble residue. This soluble starch has almost no reducing power. It is easily saccharified by malt extract. Its solution filters readily through paper, and is colored an intense blue by iodine. If in making the soluble starch more than 2 percent of the original starch is used, a product is obtained which is only partially soluble in the cold, but the insoluble portion can be separated by filtration through paper. —Compt. rend., Sept. 30, 1912, 617.

Saccharose: Determination in Foods.—S. Rothenfusser has devised a method for the determination of saccharose in natural and artificial food products which depends upon the preliminary treatment of their suitably prepared solution with strong alkaline solutions and, simultaneously, with weak solution of hydrogen peroxide and heat. By this treatment the associated sugars and other reducing organic substances are completely destroyed, whereas saccharose remains unchanged, and may be determined quantitatively with diphenylglacial acetic acid, and finally polarimetrically. The author gives explicit directions for its estimation in fermentative products, in milk, honey, flours, etc.—Ztschr. f. Unters. d. Nahr. u. Genussm., 24 (1912), No. 9.

Ether and Chloroform: Development of Heat on Mixing.—During the estimation of total alkaloids in ipecacuanha by the French Pharmacopœia method, Mme. Marcelot and H. Marcelet observed the development of heat, quite perceptible to the hands, on mixing ether and chloroform. Following up this observation for the purpose of discovering the effects on mixing the two liquids in varying proportions, using the pure liquids—the chloroform carefully freed from alcohol—kept at the same temperature, the authors found that in a mixture of 5 cc. of ether and 45 cc. of chloroform the temperature rose from the initial figure of 16.55° to a maximum of 21.5°; a mixture of 10 cc. and 40 cc. respectively rose from 16.6° to a maximum of 25.5°; 15 cc. and 35 cc., from 16.6° to 27.6°; 20 cc. and 30 cc., from 16.6° to 29.65°; and 25 cc. of ether and 25 cc. of chloroform, from 16.6° to 30.3°. With higher proportions of ether the rise diminished from 29.4° almost by the same gradation until 21.6° was reached with 45 cc. of ether and 5 cc. of chloroform. That is to say, the elevation and decrease corresponded exactly.—Bull. Sci. Pharmacol, Nov., 1912, 676.

Siam Benzoin: Source and Method of Collection.—The source of Siam benzoin is shown by Dr. Kerr in the Kew Bulletin (No. 9, 1912), to be a new species.

Styrax benzoides, Craib.—Dr. Kerr points out that the styrax tree which grows on Doi Sootep is not *Styrax Benzoin*, but a new species closely allied to *S. suberifolius*, and since described as *S. benzoides*. This tree grows rapidly, and attains a height of 12.15 M. and a girth of 9 Dm., but most of the trees are smaller, though in other parts larger trees are reported. The matter has been confirmed by the receipt at Kew of a small sample of the gum collected from the Doi Sootep trees, which in smell, taste, and fumes is identical with commercial Siamese gum benzoin. It is a homogeneous, transparent, pale-amber piece, with the characteristic odor of the balsam. The principal method of collecting it consists in making V-shaped incisions through the bark; the gum runs slowly into bamboo joints placed at the bottom of the incision, requiring several weeks for completion. The collection is usually done during

the hot season.—Pharm Journ. and Trans., Dec. 21, 1912, 777.

Digitalis: Simple Chemical Assay Method.—In an elaborate research undertaken with the object of a comparison between physiological and chemical results with an approximate simple chemical assay method of digitalis, W. Harrison Martindale briefly reviews the knowledge of the digitalis glucosides and the various methods that have from time to time been suggested and employed for the valuation of the leaves and the various preparations made from them. It occurred to him that there would be considerable utility and value in a simple chemical mode of assay, if such could be devised—a process, in fact, which would, if possible, render the pharmacist in future independent of the physiologist. It is well known that great diversity of strength exists in digitalis leaves collected at different seasons in the same locality; also that the soil, the prevailing climatic conditions, etc., may cause marked variations. Hence the author resolved upon a systematic study, covering: (1) Examination of Infusion. (2) Examination of Tinctures. (3) Physiological Assay. (4) Devising an approximate simple chemical assay and the comparison with physiological results. Preparations of leaves in the form of infusion and tincture from various parts of Great Britain, also from several European countries were examined. Glycerin extracts and a tincture of the seeds were also included. The numerous experiments involved in this comprehensive study must be consulted in the original, and it must suffice here to mention the following from the author's summary:

(1) Digitalis preparations can be assayed by a simple colorimetric chemical method (indicating the content of combined "active-water-soluble" glucosides).

(2) The process devised by the author, though not claimed to be absolutely accurate on comparison with physiological methods, will, at any rate, show whether a tincture is above or below standard, and it will certainly show an excessively strong or weak preparation. The method requires only a small amount of tincture; the apparatus and reagents are perfectly simple, and such as a pharmacist would have on hand; and the process takes only about three hours to carry out.

(3) There are strong indications that digitoxin is not entirely insoluble in water.

(4) The routine use of animals in assays is not justifiable if a chemical method can be devised to produce equivalent results. The pharmacist should, if possible, be able to assay all the drugs he dispenses.

(5) Considering the danger in the variation of a tincture, and the fact that with digitalis the initial doses are invariably large, it is evident that standardization of its preparations is of great importance.

(6) There is much to be learned as to the ideal conditions for growth of digitalis. The most potent leaves examined were second year's leaves from plants grown in England in a sunny exposed situation.

(7) An active glycero-alcohol extract can be produced of strength 1 : 1; in fact, exactly equal in strength to eight times that of a B. P. Tincture.—Pharm. Journ. and Pharmacist, Dec. 14 and 21, 1912, 745-748 and 778-780.

Senna: Pre-existence of Calcium Oxalate in the Leaves and Formation of Calcium Tartrate in the Infusion.—In an interesting paper including both microscopical and microchemical observations, elaborately illustrated and described, T. E. Wallis has demonstrated that while senna leaves contain calcium oxalate crystals, they do not contain any crystals that can be identified under the microscope as calcium tartrate, but that the deposit which is invariably formed from fresh hot infusions of senna leaves on standing a few days consists of calcium tartrate; moreover, calcium tartrate crystals are also formed by macerating senna leaves in cold water on standing a few days, thus making it evident that the deposit can not result from difference in solubility of calcium tartrate in hot and in cold water. His experiments show that the calcium tartrate does not exist as such in the leaves, but seems to be produced by some action in the infusion after it has been made, between bodies extracted by the water from the leaf. Those leaves which give no deposit of calcium tartrate show a deficiency of soluble tartrate, although containing an abundance of soluble calcium salts. It is further shown that neither excess nor deficiency of oxygen has any effect upon the quantity deposited or rate of deposition in those infusions which do deposit crystals of calcium tartrate. Senna pods show a deficiency in soluble tartrate and an abundance of soluble calcium salts, and yield infusions which do not deposit calcium tar-

trate. The best micro-chemical reagent to distinguish calcium tartrate from calcium oxalate is a solution of sodium hydroxide, which rapidly dissolves the tartrate, but has no immediate action upon calcium oxalate.—Pharm. Journ. and Pharmacist, Nov. 23, 1912, 644-647.

Opium: Effect of Age on its Morphine Content.—Debourdeaux finds that in powdered opium the amount of morphine compounds insoluble in water increases with age of the sample. There seems to be no definite connection, however, between the amount of change in different samples; it is greater in certain samples than in others, kept under similar conditions, and is doubtless due to a chemical modification of the composition of the mass. In the same manner the amount of total morphine lessens with the age of the sample, and this deterioration, again, is more marked in some cases than in others. It is probably due to the action of oxydase ferments, and is favored by the presence of air. —Journ. de Pharm. et Chim., 1912, 6, 491.

Kefir-fungus: Conservation. — Dr. W. Schurmener describes a method for the conservation of the living kefir-fungus in a dormant condition, which consists simply in placing them into a concentrated sugar solution, whereby all growth or other change of the fungus may be prevented indefinitely. When required for use, the fungus so preserved is removed from the sugar syrup, washed with cold water, and immersed several days in boiled milk at 17° to 20° C., whereupon the fungi will be fully restored to their original activity. The author, furthermore, gives a description of a method for the preparation of kefir-milk in the household, pointing out the conditions that must be observed to obtain a satisfactory product. —Pharm. Ztg., LVII (1912), No. 97,277.

Milk: Cause of Turning Sour During Thunderstorms.—A. Trillat finds that minute traces of the various gases given off during putrefaction of organic matter, when they come in contact with milk under slightly reduced atmospheric pressure, greatly increase the formation of lactic acid and accelerate the process of lactic fermentation. The same milk, exposed to a reduced atmospheric pressure in pure air, does not become sour, or clot, in the same time. Also controls exposed under normal atmospheric pressure in presence of traces of putrefaction gases do not exhibit the same degree of acidity in a given time, as the milk under reduced pressure. The author points out that in "thundery weather" the temperature is usually high, and the atmosphere charged with moisture, both conditions most favorable to the evolution of gases. It is, therefore, to the simultaneous occurrence of these conditions, rather than to the electrical disturbances which accompany them, that the "turning sour" of milk may be attributed.—Compt rend., 154 (1912), 613.

Medicated Honey: Identification and Examination.—Dr. R. Frey communicates some valuable data for the identification and examination of medicated honeys, which are frequently purchased from the wholesale dealer and for which in the absence of reliable data, the examination is usually perfunctory, consisting of the determination of the specific gravity and observation of their appearance, odor and taste. The author's experiments lead him to recommend the polariscopic examination of these honeys for the identification of the quantity and quality of the honey used for their preparation. In the case of the dark honeys, such as honey of rose, of eucalyptus, or oxymel of squill, a process of decolorization must precede the examination under the polariscope, which is carried out as follows: 10.0 of the honey are dissolved in a 100 cc. flask in 75.0 water, 10.0 solution of lead sub-acetate are added, and this is followed after some time with the addition of 3.0 anhydrous sodium sulphate with vigorous shaking. After standing half an hour, the contents of the flask are adjusted with water at 15° to 100.0, then well shaken and at once filtered. The filtrate, which is at most faintly yellow, is then examined polarimetrically, both before and after inversion, in the usual manner, the data obtained being calculated according to Windisch's table. The identification of the particular honey under examination is effected by extracting 5.0 to 10.0 of the honey with 10.0 ether, filtering through a dry filter, evaporating the ether by dipping the beaker into warm water, and observing the odor of the residue: Pure honey leaves its characteristic aroma; rose honey and borax honey, the odor of rose oil; eucalyptus honey, that of eucalyptol, and oxymel of squill that of acetic acid ester. The addition of 1 percent resorcin-hydrochloric acid to the residues produces a red color with pure honey and oxymel of squill (not cherry-red, as with

invert sugar), and faint red colorations with the other honeys mentioned.—Pharm. Ztg., LVII (1912), No. 71,719.

Extract of Indian Hemp: Uselessness of Acetylization for its Standardization.—Since the pharmacological activity of Indian Hemp is largely due to cannabinol, C. R. Marshall and J. K. Wood considered that the determination of the acetyl value of hemp preparation might give an indication of their strength. They find, however, that such is not the case, since there appears to be no definite relation between the pharmacological activity and the acetyl value. New charas, old charas, and extract of Indian Hemp, B. P., having the relative activity expressed by 20, 1, and 16, respectively, showed acetyl value of 134, 123, and 295. A sample of cannabinol distilled from old charas had the relative activity 6, and the acetyl value 190; another sample, distilled from new charas, showed 18 and 218 respectively. The authors conclude that no simple chemical method is at present available as a substitute for pharmacological experiment in the standardization of Indian Hemp preparations.—Brit. Med. Journ., 1912, 1, 1234.

Fluidextract of Ergot: Advantageous Use of the "Syphon Percolator."—Dr. Kunze calls attention to the advantageous use of the "Syphon percolator" for extracting ergot according to the process of the G. P. for the fluidextract. He finds that owing to the formation of smeary masses in the percolator, percolation is impeded and often comes to a full stop when the operation is conducted in percolators of the ordinary form. By the use of the "syphon percolator," the liquid accumulates at the bottom and is drawn upward by the syphon, the flow becoming continuous when sufficient percolate has accumulated and the syphon has been set into action. The author's description of the "syphon percolator" agrees with that, usually given in American text books, of Squibb's "well-tube" percolator.—Pharm. Ztg., LVII (1912), No. 98,988.

Concentrated Infusions: Comparison with Freshly Prepared Infusions.—A. Heiduschka and Joseph Schmid report the results of comparative biological and chemical experiments made with concentrated infusions of digitalis and of ipecacuanha representing the respective drugs weight by weight, which are recommended for the extemporaneous preparation of the infusions, and of infusions prepared by the official process direct from the drug. The chemical method consisted in the determination of the extract, the specific gravity, and the ash content, supplemented in the case of digitalis by the estimation of the digitoxin content of the infusion, by the method of Keller (modified), and in the case of ipecacuanha by the alkaloid determination prescribed by the G. P. V.; while the frog method of Focke was applied to the digitalis infusions for a comparison of their physiological activity. The results, which are exhibited in form of a table, prove conclusively that infusions made from these so-called concentrated infusions are pronouncedly inferior to infusions made directly from the drug, and lead to the conclusion that both infusions and decoctions should invariably be made freshly in accordance with the official requirement.—Zentralbl. f. Pharm., 1912, No. 41 .

The Pharmacist and the Law

ABSTRACT OF LEGAL DECISIONS.

ORAL CONTRACT FOR SALE OF SODA FOUNTAIN—STATUTE OF FRAUDS. An oral contract was made for the sale of a soda fountain, of which the parts were to be assembled by the seller. The purchaser refused to accept the fountain, and in an action for the contract price it was urged as a defense that there could be no recovery because there was no sufficient written agreement between the parties, as required by the statute of frauds, providing that every contract for a sale of "goods, chattels or things in action" for the price of $50 or more shall be void unless a note or memorandum thereof be made in writing and subscribed by the parties to be charged therewith.

The fountain which the plaintiff agreed to deliver was of particular dimensions and finished after a special design furnished by a third party. It was not an article manufactured by the plaintiff in the ordinary and usual course of business. The woodwork was to be furnished by one party, the marble work by another, and the working parts by a

third; all of which the plaintiff contracted to assemble and deliver to the defendant, in the form of a complete new soda fountain after a special design, adapted for the use to which, and in the place where, the defendant had planned to put it. It was held that the contract was for the manufacture and sale of a thing made to suit the fancy and serve the particular convenience and purpose of the defendant, without a market value for use in general trade, and therefore, although the agreement might result in the production and sale of a chattel, it was one for work and labor, and not within the statute of frauds.

The fountain having been manufactured to the defendant's order after a special design, it was held, following the rule in the majority of the states, that the seller might elect to hold the property for the purchaser and recover the contract price; the article being presumptively without a market value. Although the contract provided that title should not pass until the fountain was set up and accepted, the seller might, upon tender of delivery and refusal, sue for the contract price. The tender, coupled with ability to deliver and election to sue vested title in the purchaser for the purpose of the action.

Bond v. Bourk, Colorado Supreme Court, 129, *Pac.* 223.

PURE FOOD AND DRUGS LAW—INTERSTATE COMMERCE. A corporation located in the southern district of the state of New York was indicted for violation of the Pure Food and Drugs Law. It was held that an objection that it could only be prosecuted in the district where its principal place of business was located could not be raised by plea based on the wording of the information.

Section 2 of the statute prohibits the introduction into any state of any article of food or drugs adulterated and misbranded, and that any person who shall ship or deliver for shipment from any state to any other state any such adulterated article shall be guilty of a misdemeanor. It was held that since the statute relates solely to interstate commerce, no jurisdiction to prosecute for violation of the act can be acquired, except through the existence of interstate commerce. It was also held that Section 4, which provides that the Secretary of Agriculture, after an investigation of the alleged violation of the law, shall at once certify the fact to the United States district attorney, requires the certification to the district attorney in whose district prosecution for the offense charged should be laid, Section 10, providing for the seizure of adulterated or misbranded goods within any district where they may be found, relates to civil proceedings against the goods only, and does not determine jurisdiction of a criminal prosecution. The gist of the offense is the shipping or delivery for shipment of adulterated or misbranded goods, to be introduced into another state by interstate commerce, and therefore jurisdiction exists in the federal court of the district from which the goods were shipped though the defendant did not reside in such district. The statute did not repeal the general three-year statute of limitations applicable to crimes, so as to require immediate prosecution on the theory that in case of delay, the right of prosecution would be barred by laches.

United States v. J. L. Hopkins Co., New York E. D. District Court, 199 *Fed.*, 649.

OWNERSHIP OF BANK DEPOSITS. In summary proceedings by the trustee of a bankrupt drug company against a bank, the bank holding notes against the bankrupt for an amount larger than the bankrupt's total deposits, claimed the right to set off the notes against the deposits. The trustee claimed that the deposits had been made under a special arrangement with the creditors, to be paid to them on their debts pro rata, and that the bank had notice thereof. The deposits were entered on the bank's books to the credit of the bankrupt, without anything to show that they were other than ordinary deposits. At the time of the institution of the bankruptcy, the greater part of them consisted of the proceeds of a note given to the bankrupt for the purchase of its goods. It was held that the bank's claim was not merely a colorable one, but an adversary one, and could only be determined in a plenary suit between the bank and the trustee, and not by summary proceedings in bankruptcy.

First Nat. Bank of Thomasville, Ga., v. Hopkins, C. C. A., 199 *Fed.* 873.

ADULTERATION — MISBRANDING—GRENADINE SYRUP. A shipper consigned from Boston for delivery in New York 30 cases containing bottles labeled "Grenadine Syrup," as being adulterated within the meaning of the Food and Drugs Act, in that a compound sugar syrup had been substituted wholly or in part for the food named, and as being misbranded

within the meaning of the act, in that the label deceived and mislead the purchaser into the belief that the food consisted of grenadine syrup, whereas in fact it did not. The shipper denied adulteration and misbranding. The government contended that "Grenadine Syrup" means only syrup composed of sugar and the juice of the pomegranate. The shipper claimed that according to the accepted meaning of the words they signify only a sugar syrup having a certain color and flavor. He conceded that no pomegranates were used in the manufacture of the syrup. If the government was right in its contention that the words "Grenadine Syrup" have, in common acceptation, the limited meaning it asserted, it had proved adulteration and misbranding. It was, however, held that the term does not in its common acceptation, mean a syrup made from pomegranates but is used in commerce to designate, not a syrup so made, but a syrup possessing a certain characteristic flavor and color. The purchaser of a syrup so labeled would not have the right to expect a syrup actually made from pomegranates. The syrup labelled was therefore not subject to forfeiture.

United States v. Thirty Cases Purporting to be Grenadine Syrup, Massachusetts D. District Court, 199 *Fed.* 932.

MANUFACTURE OF SMOKING OPIUM. The Circuit Court of Appeals holds that any process whereby crude opium is converted into a product fit for smoking constitutes a "manufacture" of smoking opium within the meaning of the Internal Revenue Act of Oct. 1, 1890, imposing a tax upon all opium manufactured for smoking purposes in the United states, and prescribing regulations for such manufacture to be observed under penalty of criminal prosecution. That act was not repealed nor its application narrowed by the Act of Feb. 9, 1909, prohibiting the importation of opium for other than medicinal purposes.

Marks v. U. S., 196 *Fed.* 476.

VALIDITY OF ADRENALIN PATENTS. The Takamine patent, No. 730,176, for the glandular extractive product commercially known as "Adrenalin," claim 1, covers "a substance possessing the therein described physiological characteristics and reactions of the suprarenal glands in a stable and concentrated form and practically free from inert and associated gland tissue." Claims 2, 9, 11, 12 and 14, all contain a reference to "associated gland tissue." The Circuit Court of Appeals holds that these claims construed in the light of the specification, must be limited to a substance possessing the described characteristics and reactions the constituents of which, or some of them, were at one time associated with suprarenal gland tissues. As so construed all of these claims were held to be valid. Claims 6, 13 and 15 of the patent, which do not contain such limitations, were not passed upon. The Takamine patent No. 753,177, for a glandular extractive compound dealing with a salt of the product covered by patent No. 730,176, claims 5 and 6, which are expressly limited to a compound of an acid and "the herein described product of the suprarenal glands" were held valid. Claims 1 and 2, which were without such limitation, were not passed upon.

Parke, Davis & Co. v. H. K. Mulford & Co., 196 *Fed.* 496.

ILLEGAL SALE OF POISON—INDICTMENT. An indictment under the Minnesota statute, R. L. 1905, Section 2340, purported to charge the defendant with the crime of permitting the vending of poison in his place of business without the supervision of a registered pharmacist or assistant, resulting in the death of a human being. It alleged the name of the person to whom the sale was made, but not the name of the person making it; that the defendant knowingly permitted the sale, but not the manner or mode in which the defendant permitted the sale; and that the sale was made without the supervision of a registered pharmacist. It was held that the indictment stated facts sufficient to constitute a public offense.

State v. Mayo, Minnesota Supreme Court, 136 *S. W.* 849.

SODA FOUNTAIN TANK EXPLOSION—LIABILITY. In an action for the death of an employe caused by the explosion of a soda fountain tank, it was found that the proximate cause of the occurrence was the negligence of a co-employe who had been directed by the employer to instruct the deceased how to charge the tank. It was held that the negligence was not that of the fellow servant, but of the employer, and hence the employer was liable. Such co-employe having charge of the employer's soda department, and it being one of his duties to see that the fountains were charged, he represented the employer in giving such direction. The tank which exploded was badly rusted and scaled and in

use in a place and under circumstances highly conducive to rust and deterioration. It was held that the employer's negligence in failing to use reasonable care to maintain the tank in a safe condition was for the jury. An instruction to the jury that the employer was bound, in making an inspection of the tank to do what a reasonable man of ordinary prudence would do to keep the tank in a reasonably safe condition was not error. While the reference to inspection might properly have been omitted, it could not be said that it misled the jury, although there was no evidence showing that inspection of such apparatus was usual or customary.

Reference by the plaintiff's counsel, in his argument, to the death as a murder worthy of the pirates of old, remarks that the employe was sent into a sewer reeking with slime and smells, without the opportunity to prepare for eternity given to the worst criminal, and that the jurors would not want it on their conscience that they had placed a man in such danger, were held to be inflammatory and improper, and contributed to a reduction of the verdict from $6,286.01 to $3000.

McDonnell v. Central Drug Co., Michigan Supreme Court, 136 *N. W.* 383.

UNLAWFUL SALE OF COCAINE—EVIDENCE. In a prosecution for unlawfully selling cocaine, a doctor, who was also a pharmacist, testified that he could not tell the difference between cocaine and epsom salts, except by an actual test. It was, nevertheless, held that his opinion that a powder in a package which he tasted was cocaine was properly admitted, he having previously described the effect of cocaine and the effect of the powder which he tested and as he did not say that his opinion was unsatisfactory.

A person to whom the sale was alleged to have been made was a witness for the defendant. It was held that the evidence of an officer that he saw the defendant give the witness a package for which she paid him and received change, and that as soon as she came out of the house he arrested her, and found on her person the package, which contained cocaine and the change tied up with it in a handkerchief, and that she admitted purchasing it from the defendant was held admissible to contradict her.

State v. Bruno, North Carolina Supreme Court, 74 *S. E.* 462.

INTOXICATING LIQUORS—SALES BY DRUGGISTS—ASSIGNMENT OF LICENSES. In a prosecution for selling liquor without a license the West Virginia Supreme Court holds that an endorsement of a transfer on a druggist's license previously granted by a court, by the clerk thereof, without previous authority of such court lawfully given, is void. The subsequent grant and confirmation of such transfer by such court, though regularly and lawfully done on proper application, will have no retroactive effect to protect the assignee of such license against the consequences of his prior unlawful act in making sale of spirituous liquors.

Neither a druggist, nor registered pharmacist, not a licensed druggist, can under the laws of West Virginia, lawfully sell spirituous liquors, even upon the prescription of a physician without a state license therefor, as required by Section 1 of Chapter 32, Code 1906.

When by statute, as in West Virginia, an act is made an offense under the liquor laws without regard to the intent with which it is done, evidence on the subject of intent is not material; and on the trial of one charged with a violation of such statute, there is no error in rejecting such evidence, or instructions to the jury thereon.

State v. Ross, 74 *S. E.* 670.

DRUGGISTS' LIABILITY FOR CLERK'S NEGLIGENCE. Action was brought against a druggist for the negligence of a clerk employed by him in putting up a prescription. The prescription read "Rhei., Calumba, Bismuth Sub., Sodii Bicarb., Zingiber, Fiat in Chart. XXIV, One t. i. d." The clerk read the prescription as intended, except that he interpreted the second word to mean "Calomel" instead of "Calumba"; and he accordingly put up the powders, each containing five grains of calomel. A prescription of such a quantity to be taken three times a day, making a total of 120 grains, or 2 drams in eight days, would be unusual, though not unprecedented in some violent diseases. The quantity of calomel compounded by the clerk attracted his attention, and he inquired of the plaintiff through her interpreter (she being an Italian who did not undertand English) if she understood the dose, and had any special instructions from the doctor. The record did not show that any response was given to this inquiry. After taking six of the powders the plaintiff became ill. The defendant denied

the negligence and also based his defense upon the allegation that his clerk was a licensed pharmacist. It was held that a druggist's liability for his clerk's negligent filling of a prescription is not defeated because the clerk was a competent druggist of experience. A druggist must use ordinary care in filling a prescription; the degree of vigilance and prudence called for being commensurate with the dangers involved. "Ordinary care" with reference to the business of a druggist was held to signify the highest practicable degree of prudence, thoughtfulness and vigilance, and the most exact and reliable safeguards consisted with the reasonable conduct of the business, in order that human life may not constantly be exposed to the danger flowing from the substitution of deadly poisons for harmless medicine.

The jury's finding that the clerk was negligent in compounding the powders was held not to be inconsistent with their findings that calomel was furnished in the prescription by mistake, that the prescription as he read it aroused the clerk's suspicion that calomel was not intended, and that the clerk made no reasonable effort to ascertain whether he was mistaken.

Tombari v. Conners, Connecticut Supreme Court, 82 *Atl.* 640.

SALES—RETURN OF GOODS. Where a druggist ordered certain drugs, to be paid for in 30, 60, 90, 120 and 150 days, and the vendor agreed that in consideration of the fulfilment of the terms of the order and other agreements the vendee could return any goods remaining unsold at the end of the year, the vendee had a right to return the drugs remaining unsold at the end of the year, although he had not paid the entire purchase price according to the terms of the order.

Ramsey v. Hessig-Ellis Drug Co., Oklahoma Supreme Court, 122 *Pac.* 662.

QUALIFICATIONS FOR REGISTRATION—PENNSYLVANIA ACT OF 1905. The word "retailing" used in the Pennsylvania Act of 1905 does not necessarily confine the experience of an applicant for registration as a registered pharmacist to a retail drug store. Where an applicant has had four years' practical experience in the business of retailing, compounding or dispensing of drugs, chemicals and poisons, and of compounding physicians' prescriptions, although part of said time was at a United States army post hospital, and is a graduate of a reputable and properly chartered college of pharmacy, such applicant comes within the qualifications prescribed by the Act of 1905.

Raines' Case, 38 *Pennsylvania Co. Ct.* 233.

PURE FOOD AND DRUGS ACT—NOTICE AND HEARING. The United States Supreme Court holds that the notice and preliminary hearing by the Department of Agriculture, which must be given under the Pure Food and Drug Act of June 30, 1906, to the person from whom the sample was obtained, when, upon examination by the Board of Chemistry, an article found to be adulterated or misbranded, is not a condition precedent to the prosecution of a manufacturer, instituted by the Department of Agriculture or its agent, for shipping misbranded goods in interstate commerce.

U. S. v. Morgan, 32 *U. S. Sup. Ct.* 81.

VIOLATION OF RULE UNDER PURE FOOD ACT. The Nebraska pure food statute provides that testing of cream for commercial purposes "shall be done in accordance with the rules and regulations therefor prescribed by the commission" Ann. St. 1911, 9838. The Commissioner made a rule that payment for cream purchased for commercial purposes should not be made on the same day of the purchase. It was held that a defendant could not be punished criminally for a violation of this rule, the time and manner of payment having no connection with the testing of the cream.

State v. Elam, Nebraska Supreme Court, 136 *N. W.* 59.

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ABSTRACT OF U. S. TREASURY DECISIONS.

(T. D. 33069.) FORFEITURE AND DESTRUCTION OF SMOKING OPIUM. The opinion of the Attorney-General is that smoking opium seized for violation of Section 1 of the Act of February 9, 1909, prohibiting its importation, may, under Section 2 of the act, be summarily forfeited and destroyed by collectors of customs without judicial proceedings. The offense is committed whenever smoking opium is fraudulently and knowingly brought by an offender within the territorial limits of the United States. The offense is then complete, although the opium may not have been

landed from a ship or have been carried across the customs lines.

"There is an entire distinction," the Attorney-General says, "as to the propriety of summary destruction between articles which are nuisances *per se* and articles of a lawful character, but brought within the ban of the law by some collateral circumstance. Opium belongs to the former class. It is a noxious drug fitted by nature to do harm to the community. It is, in and of itself, a menace. It belongs to the class of things which 'carry their own identification as contraband of law' (220 U. S. 57), 'which are outlaws of commerce' (Ibid. 58)."

(T. D. 33117—G. A. 7420.) DRUGS—ESSENTIAL OILS. It is held by the Board of General Appraisers that oil of cypress, oil of cloves, oil of cardamom, oil of Ceylon cinnamon, and oil of pennyroyal distilled from drugs, which, through the processes of distillation, have lost their identity as such are no longer crude drugs, but are essential oils, and are subject to duty at the rate of 25 percent ad valorem under paragraph 3 of the tariff act of 1909.

(T. D. 33118—G. A. 7241.) MEDICINAL PREPARATIONS.—*Ext. Taraxaci* "Allens," *Ext. Gentianae U. S. P.,* and *Syr. Rhamni,* are held by the Board of General Appraisers not to be drugs within the meaning of the language of paragraph 20 of the tariff act of 1909, but medicinal preparations, and as such are dutiable at the rate of 25 percent ad valorem under paragraph 65 of the act. It was not denied by the protestants that they were extracted from roots and berries having medicinal properties and were prescribed for and used as medicine.

(T. D. 33131.) DRAWBACK ON MEDICINAL AND TOILET PREPARATIONS. T. D. 29719 of April 30, 1909, providing for the allowance of drawback on flavoring extracts, concentrated essential oils, concentrated essences, and perfumes manufactured by Van Dyke & Co. of New York, is extended to cover medicinal and toilet preparations manufactured by that company with the use of tax-paid alcohol, and amended to permit the filing of supplemental sworn statements.

(T. D. 33167.) MENTHOL — MEDICINAL PREPARATIONS. The United States Court of Customs Appeals holds that menthol, or peppermint crystals, is not a crude drug, but a manufacture from the peppermint plant. As imported it is sometimes used without the addition of any carrying material for medicinal purposes, while its more common use is in solution or as a salve mixed with inert matter or the like. It was held properly classified as a medicinal preparation and was dutiable accordingly under paragraph 65, tariff act of 1909. The fact that in its customary use it is to be put in form for such use by the use of a carrier, or that it is to be dissolved, so long as it requires no chemical change and no compounding with other medicinal ingredients to make it useful as a medicine, does not result in taking it out of the category of medicinal preparations.

(T. D. 1825.) ALCOHOLIC MEDICINAL PREPARATIONS. The Elixir Calisaya Bark, manufactured by the Upjohn Co., is now manufactured under a formula approved by the Internal Revenue office, and its name has therefore been removed from T. D. 1794, of August, 1912, and special tax is not required for its sale.

(T. D. 1831.) DENATURED ALCOHOL. The Commissioners of Internal Revenue have authorized the following formula for use in the manufacture of transparent soap:

Formula No. 3a: To 100 gallons of ethyl alcohol there is added 6 gallons of the following mixture: Five gallons of commercially pure methyl alcohol, having a specific gravity of not more than 0.810 at 60° F., and 1 gallon of castor oil.

THE TOWN OF "NO GOOD."

Have you heard of the Town of
"No Good," on the banks of the River
Slow,
Where the Some-time-or-other scents the air,
And the soft Go-easies grow?
It lies in the valley of What's-the-use, in the
Province of Let-her-slide;
It's the home of the reckless I-don't-care,
where
The Give-it-ups abide.
The town is as old as the human race, and it
Grows with the flight of years.
It is wrapped in the fog of the idler's dreams,
Its streets are paved with discarded
schemes,
And are sprinkled with useless tears.

—*The Australasian Journal of Pharmacy.*

Editorial Notes and Announcements

JAMES H. BEAL, Editor.....Scio, O.

All communications for insertion in the JOURNAL, or respecting advertising should be sent to the Editor.

The Association does not accept responsibility for the opinions of contributors. Offensive personalities must be avoided.

Under the rules of the Post Office the JOURNAL can be regularly mailed only to bona-fide paid subscribers. Subscriptions and association dues should be sent to the Treasurer, H. M. Whelpley, 2342 Albion Place, St. Louis, Mo.

Requests for back numbers, and claims for missing numbers should be sent to the Editor.

Claims for missing numbers will not be allowed if sufficient notice has not been given of change of address, and in no case if received later than sixty days from the date of issue.

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REPRINTS.

If the request is made at the time copy is submitted, authors will be furnished with not to exceed 50 reprints, without cover, of papers accepted for publication in the JOURNAL.

Larger numbers of reprints will be supplied by the Stoneman Press Co. at the following prices, provided the order is received before the type has been distributed:

100 copies, 4 pages, no cover, $2.50, with cover, $4.50.

200 copies, 4 pages, no cover, $3.00, with cover, $5.50.

50 copies, 8 pages, no cover, $2.75, with cover, $4.50.

100 copies, 8 pages ,no cover, $3.50, with cover, $5.00.

200 copies, 8 pages, no cover, $4.50, with cover, $6.50.

50 copies, 12 or 16 pages, no cover, $4.00, with cover, $5.50.

100 copies, 12 or 16 pages, no cover, $5.00, with cover, $6.50.

200 copies, 12 or 16 pages, no cover, $6.50, with cover, $8.00.

Orders for reprints may be sent either to the Editor, or to the Stoneman Press Co. Columbus, Ohio.

A CORRECTION.

In the February issue, page 167, tenth line from the bottom, the word "declined" should be "decided."

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A WORTHY PRIZE WORTHILY BESTOWED.

At the last examination held at Jacksonville, Fla., January 16th and 17th, Mr. C. A. Forbrich of the Department of Pharmacy of Northwestern University, Chicago, made the highest average in all subjects, and thereby won the first prize offered by the Florida Board of Pharmacy, consisting of a nomination to membership in the American Pharmaceutical Association and a check for the payment of the first year's dues. He also made the highest rating in the subject pharmacy and thereby won the second prize, consisting of a nomination to membership in the Florida Pharmaceutical Association and the first year's dues.

With such a notable start, we may expect that Mr. Forbrich will become an active member and association worker.

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VOLUME 59 OF THE PROCEEDINGS.

Those who have read the Council letters regularly printed in the JOURNAL will recall that in June last the General Secretary was ordered to defer the publication of volume 59 of the Proceedings until after the Denver meeting. (See July JOURNAL, pp. 783-784.)

At the Denver meeting, after an extended discussion it was resolved (See October JOURNAL, p. 1103), to publish the report on Progress of Pharmacy covering the period from June 30, 1910, to December 31, 1911, with the official data, etc., as Volume 59 of the Proceedings, and that future reports on the Progress of Pharmacy should be published, in monthly installments, in the JOURNAL, beginning January, 1913.

Immediately following the Denver meeting the manuscript copy for the foregoing volume was placed in the hands of the printer, and is now so well advanced toward completion that it should be ready for distribution to all dues-paid members, within a few weeks after the appearance of this issue of the JOURNAL.

Dues-paid members who do not receive the book within a reasonable length of time

should address a letter of inquiry to the Treasurer.

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PROGRESS OF THE A. PH. A. HOME.

The replies to the circular letter addressed to the members concerning the A. Ph. A. Home have been numerous, and are unanimously in favor of the establishment of a permanent abiding place for the official headquarters and association property. The offers of help are abundant, and there seems to be no differences of opinion as to the desirability and feasibility of the project.

In considering the cost of maintaining such a headquarters building, there should be kept in mind the distinction between the physical maintenance of the building itself, and the cost of maintaining research workers therein.

The physical upkeep of a building sufficient for the needs of the Association, including such expenses as taxes, insurance, heat, light, and janitor service could probably be provided for out of the income from the present invested funds of the Association, or the excess would be so small as to be of but little consequence. This part of the question, therefore, need cause but little concern.

The plan of a headquarters building, however, includes the employment of research workers for laboratory research on National Formulary, U. S. P., and other pharmacy problems, and it is in providing for such activities that the greater part of the expense would be created.

For this portion of the expense the Association would have to rely upon contributions from members and from patrons who could be made to see the importance of the work proposed to be done, and who are able and willing to contribute funds for that purpose. This need cause no uneasiness, however, since until such funds were provided, or until the income from other sources is sufficient, such expense would naturally not be incurred.

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NEW MEN AT THE HELM OF THE DEUTSCH-AMERIKANISCHE APOTHEKER-ZEITUNG.

Following the death of its former publisher, the Deutsch-Amerikanische Apotheker-Zeitung will be published by the German Apothecaries' Publishing Co., of which Felix Hirseman is president and Hugo Kantrowitz is secretary and general manager. It is the ambition of these two gentlemen not only to maintain the present high standing of the publication, but so to broaden its scope and influence as to make it the leading publication of its kind in America. On the editorial staff also are Dr. William C. Alpers, of New York, and Wilhelm Bodemann, of Chicago.

Felix Hirseman is one of the best known and most versatile of German-American pharmacists, and he has held many important positions in pharmacy. Among other honors bestowed upon him in past years have been the presidency of the New York State Pharmaceutical Association and also of the New Yorker Deutschen Apotheker-Verein.

The former and present general manager, Hugo Kantrowitz, has been so intimately identified with the Zeitung that one cannot help associating his genial personality with the very name of the publication. To know that he is to continue as general manager and that Felix Hirseman is with him at the helm, is to know that it will go on to even greater success and prosperity. The Report extends its heartiest congratulations and good wishes.

Hoch die Deutsch-Amerikanische Apotheker-Zeitung!—Reprint from Merck's Report, Dec., 1912.

The Bulletin Board

ANNUAL MEETING OF THE AMERICAN DRUGGISTS' FIRE INSURANCE COMPANY.

The Annual Stockholders' and Directors' Meeting of The American Druggists' Fire Insurance Company took place at Cincinnati, Ohio, on the 11th and 12th of February.

For the first time in its history the insurance written for one year was in excess of ten million dollars, the exact volume being $10,089,350.06, at a premium of $102,857.28. The premium as shown is after allowing for the 25 percent reduction in premium rate which is made for all policyholders. The company saved the retail drug trade of the country who are its policyholders during last year the sum of $34,252.87. The actual

saving made by policyholders since the company has commenced business are $120,-106.32. The income for the year from all sources after deducting premiums paid for reinsurance amounted to $105,955.55. The fire losses incurred during the year amounted to $46,558.39. All expenses both paid and accrued as against the business of the year amounted to $36,527.53. The Company on the 31st day of December, 1912, owned Government and Ohio County and Municipal Bonds to the amount of $300,387.13. During the year its reinsurance reserve on added business was increased to the sum of $6,-486.28, thus bringing the entire reinsurance reserve to the sum of $48,461.97. The total assets of the Company on December 31st, after deducting non-admitted assets, amounted to $333,128.82. The total accrued liabilities not including the reinsurance reserve at that time amounted to $11,270.19. The reinsurance reserve, which under the law is regarded as a liability, as stated, amounted to $48,461.97.

The Directors at their annual meeting declared a nine percent (9%) dividend to stockholders of record, payable on the 1st day of March.

The following Officers and Directors were elected:

Directors: Charles H. Avery, L. G. Heinritz, James H. Beal, W. S. Elkin, Jr., Wm. C. Anderson, G. O. Young, A. O. Zwick, Lewis C. Hopp, Simon N. Jones, John D. Muir, Walter Rothwell, George B. Kauffman, M. S. Kahn, E. B. Heimstreet, Frank H. Freericks.

Officers: President, Charles H. Avery; Vice President, L. G. Heinritz; Secretary and General Counsel, Frank H. Freericks; Treasurer, George B. Kauffman.

Executive Committee: Charles H. Avery, L. G. Heinritz, J. H. Beal, George B. Kauffman, Walter Rothwell, A. O. Zwick and Frank H. Freericks.

On Tuesday, February 11th, the visiting and local stockholders were tendered a luncheon by Drs. Beal and Kauffman, at the Grand Hotel, and Tuesday evening, after the first day's work was completed, the Directors, Advisory Members and Non-Resident Stockholders, were entertained by the local stockholders with a theater party and after-theater dinner at the Bismarck.

CONCERNING THE PROPOSED A. PH. A. HOME.

Below are printed a few of the numerous replies to the circular letter sent out by the General Secretary a few weeks since. It is intended to print all of the responses as space permits:

CITY ISLAND, NEW YORK.

Replying to your request for an expression of opinion as to the utility and desirbility of a home for the American Pharmaceutical Association, I believe that there will be a general assent, as hundreds of arguments can be brought in favor of it, and hardly any against the proposal. It seems to me to be simply a question of expediency, a question whether men who have become wealthy through pharmacy and chemistry can be found with sufficient liberality and broadness to create a fund for such a noble enterprise. As you pointed out in your editorial, and also in your circular letter, the historical collection and the preservation of the archives, proceedings, and general literature, would warrant such an expenditure. The advantage of a permanent official headquarters must be apparent to all, as well as the usefulness of an experimental laboratory for the working out of formulæ for the National Formulary, for the Pharmacopœia, and for other purposes. It seems to me that the reporter on the progress of pharmacy should also have his headquarters at such a home, so that the great facilities of the clerical staff as well as the laboratory would be at his disposal.

It is not necessary to dwell on all the advantages that the Association as such would derive from this house, but there is a much broader view to take of this home, how it might be of use to every pharmacist in the United States, and to those in foreign lands as well. Pharmacy has gained in the last twenty years a higher standard in the opinion of the public than ever before, and is recognized by nearly every university by a faculty equal in scientific attainments and purposes to any other. The same spirit of elevation and enlargement of its field of usefulness prevails in other countries, and it is only by cultivating this general spirit, which seems to be international, that pharmacy will finally be freed from the commercial incubus and attain the high degree of scientific worth that it deserves. To do so the pharmacists of the

United States should recognize that they also owe a duty to the scientific world, I might say to civilization, and this duty can only be performed by the aid of such a central headquarters for all pharmaceutical matters.

To explain better the thoughts that agitate my mind, I would like to make a comparison between this pharmaceutical home and a home that exists now in New York, and has done wonderful and remarkable work during the short time since its establishment. I refer to the Deutsches Haus (German House) of Columbia University, an institution originally founded at the instigation of the Germanistic Society of America, the aim of which is to acquaint the American nation with all phases of modern German civilization. It is the great exchange place for information regarding American and German education, art, literature, and similar matters which are of interest to the educated class of both nations. The house contains a Bureau of Academic Information, where students who wish to study in Germany may receive particulars regarding the details of their stay abroad, tuition, curriculum, living expenses, etc., and lecture tours are arranged for prominent visiting Germans. There are also facilities for arranging similar matters in Germany and for arranging tours of Americans in the German Empire. In the reading room and library may be found the latest German contemporary literature, leading German magazines and newspapers, and a valuable collection of clippings concerning modern German art, music, drama and literature. The third floor of the house contains the apartments of the Kaiser-Wilhelm Exchange Professor during his stay in New York, and in addition there are two rooms which are occupied by prominent German guests who pass through New York, and wish to keep in touch with the work being done at this institution, which may be rightly called the common meeting place in this country of the German and the American people. A similar house for the French in this country, the Maison Francaise, is now being organized along the same lines as the Deutsches Haus.

In the same way a Pharmaceutical House should be organized, as the great intellectual exchange for matters pharmaceutical of the world. Here the threads of all universities and pharmaceutical schools could run together. Exchange of professors for lectures, exchange for students if necessary, could be arranged, prominent pharmacists of Europe would be welcomed here, and tours for their American stay laid out. Such an institution should be the headquarters for all sciences pertaining to pharmacy, and in this way serve not only the members of the American Pharmaceutical Association, but pharmacy in general all over the world.

By all means let us have it! It is the one institution that would raise pharmacy to a height to which it has never yet attained!

Yours very truly,

WILLIAM C. ALPERS.

ST. PAUL, MINN.

I have your recent favor asking an expression of opinion regarding the desirability of permanent official headquarters, and beg to say that my opinion is that such headquarters are not only desirable but necessary.

Having been trained at the headquarters of the Pharmaceutical Society of Great Britain I have been able to experience personally the great benefits that are derived from such a building, where is to be found the finest reference library in the country, a fine museum of vegetable products and a herbarium of dried plants, together with many objects of historical interest, the value of which increase as time goes on, and which would be practically lost to posterity for the want of a place to keep them.

I refer to such things as old-fashioned ointment jars, pestles and mortars, prints and old pictures. Believe me when I say that you are working along the right lines in trying to establish permanent headquarters for the American Pharmaceutical Association.

Yours very truly,

F. A. UPSHER SMITH.

PHILADELPHIA, PA.

I have your letter in regard to having an official home for the Association's headquarters. I agree heartily with you that this is a very important plan. The American Pharmaceutical Association should have some place that they could call home, where they could work out problems relating to pharmacy and chemistry. Very cordially yours,

W. A. PEARSON.

NEW YORK CITY.

In reply to your letter of recent date would say that I am very pleased to learn

that my check was the first one sent for the good cause—the idea of the A. Ph. A. home is certainly a splendid one. As I stated in my previous letter will try to interest other pharmacists, and I hope the contributions will increase rapidly.

Wishing you success from the bottom of my heart, I remain, Yours fraternally,

J. LEON LASCOFF.

NEW YORK.

In reply to your circular letter in relation to the desirability of providing an Association Home, or permanent official headquarters for the Association, I am of the opinion that there is urgent need for an Association Building, not only to house and preserve the already valuable property of the Association, but to provide adequate facilities for carrying on its increasingly important work.

If a suitable location for such a building can be agreed upon and secured, it should not be difficult to finance the project, although I don't think it possible to interest people outside the drug trade in it. I do think, however, that each active member of our Association can be relied upon to contribute something for a building fund, and in addition, as already suggested by a correspondent, if parts of the building could be erected as memorials of distinguished American pharmacists, and a Procter room, a Parrish room, a Squibb room, etc., be provided for, I am persuaded that with such a tangible means of honoring the memories of their preceptors before them, pharmacists who benefited by their teachings would gladly contribute according to their means for this laudable purpose. Very truly yours,

THOS. F. MAIN.

BROOKLYN, N. Y.

Count me with you in the matter of a permanent home for the A. Ph. A. We need just such, and need it very much.

Yours truly,

R. G. ECCLES.

BOSTON, MASS.

In addition to the many advantages which would accrue to our Association from the erection of such a building that are enumerated in your article entitled "The Need of an Association Home," you have failed to give place to the advertising possibilities of such a structure, the increase it would bring to our revenues merely from its possession, and also, which is perhaps pre-eminently most important, the added dignity it would give to our calling by the possession by the craft of a building devoted to the national interests of pharmacy.

Pharmacy needs to be uplifted by its disciples. What pride would every pharmacist feel in a noble dignified structure, devoted to pharmacy, the center of pharmaceutical light for the United States, if not for all the world?

To be respected we must dignify ourselves.
"The fault, dear Brutus, is not in our stars,
But in ourselves, that we are underlings."

Can we dignify ourselves more than by the erection of a noble structure,—A Home for American Pharmacy,—to which we could point with pride and which must bring increased respect to all the profession?

Yours very sincerely,

ERNEST C. MARSHALL.

NASHVILLE, TENN.

Your timely editorial, in the November issue of the JOURNAL on "The Need of an Association Home," appears to have started a progressive ripple that seems likely to become a wave, and I hope the circle will spread to the shore on every side, and land that $50,000 building in some good central location, like Cincinnati or St. Louis. Then every once in a while we can have a "home coming," and everybody make an earnest effort to be present at the family reunion.

They say "Three moves is equal to a fire," and we are now on our third one since my time, and I think it is getting to be time we were settling down and trying to accumulate something, we can leave, to show those who follow, that we have not lived entirely unto ourselves. To do this, it is necessary that we have a store house of our own, for we can never accumulate while we are moving from "pillar to post."

Twenty-five dollars from each of 2500 members will put your $50,000 building there and leave something towards establishing those laboratories and furnishing it. If we can get the building, we ought to be in as good a fix as the fellow who was discussing the marriage question with his best girl, and told her if she thought she could furnish a little bread and meat he would try and scuffle around and get up what water they

would need; if we can get the building in the right location, perhaps we can skirmish around and keep it going.

I certainly think we need the "Home," and stand ready with my $25 whenever called on for that purpose.

Trusting that this agitation may not end in talk, with kind regards and best wishes, I am, Very sincerely yours,

J. O. BURGE.

MEADVILLE, PA.

Commenting upon your very timely editorial in the November issue of the JOURNAL on "The Need of an Association Home," I desire to express my hearty approval of the scheme and would like to add a few pertinent observations. Surely an organization that has withstood the strain and stress of three-score years has amply proven the need for its existence and ought to merit the consideration of loyal pharmacists everywhere. It is well nigh impossible to reckon the vast amount of real constructive work already accomplished by the A. Ph. A. during this long period, but it is within the premise of truth to say that no other single agency has performed such signal service for the uplift and advancement of pharmacy—a service which has inured to the weal and welfare of every devotee of pharmacy throughout the length and breadth of our land.

The time has come in the life of the Association when its nomadic character should close and its belongings and interests properly conserved and preserved in a fitting home. The need of such a permanent abiding place has long been apparent to those who have the Association's interest at heart, the chief obstacle to its realization being the necessary funds to carry out the project. To accomplish this end some such scheme as the following might, if put in operation, prove successful; it is estimated that there are upwards of 45,000 pharmacists engaged in the calling in these United States, every one of whom either directly or indirectly, has come under the influence of the Association's work and been a partaker of her manifold benefits. If each one of these were to contribute but a single dollar, it would make a most auspicious beginning. Some would contribute more, and a few of the more loyal ones would contribute quite generously toward the success of such a worthy movement. Aside from this community of interests for a specific purpose, this unity of spirit and action is a tremendous factor when exerted in any worthy movement, and the banding together of this number of pharmacists in a common cause would very materially augment our sphere of influence and usefulness as a profession. I need but call your attention to our sister Association—the A. M. A.—whose membership has been increased enormously within recent years through systematic organization until today it stands out pre-eminent, a powerful body working incessantly for the betterment of the medical profession everywhere.

If this matter could be properly brought to the attention of the pharmacists of the United States in its larger and wider significance, thousands of our coworkers would welcome it as a duty rather than an obligation. This spirit was thoroughly manifested in the keen enthusiasm with which pharmacists everywhere rallied to the fund of our lamented friend Hallberg. It was truly a fine testimonial to the integrity and worth of the man. Rightly considered, the rank and file of our profession owe this obligation to themselves—appreciation in part for the large measure of enduring work accomplished by the Association.

In addition to the various uses for the home as tersely outlined by Secretary Beal, the building would become a repository for all things pharmaceutical and of pharmaceutic interest; a storehouse for such miscellaneous pharmaceutic apparatus, implements, etc., with a view of establishing a sort of national museum of historic interest to pharmacists; and finally it would stand as a fitting and suitable monument to the large and growing number of American pharmacists who feel an instinctive pride in their chosen calling and who would gladly give some tangible expression to this sentiment once the home is an assured fact.

Let us hope that all practitioners of the art may become interested in this worthy movement and that ultimately some definite memorial may be erected and dedicated to the glory and honor of the profession in which we serve.

Cordially and fraternally yours,

P. HENRY UTECH.

BOSTON, MASS.

Your circular letter about the suggested "Home" for the Association came to me several days ago. I can see nothing but good in such a plan, if it is carried out right, and I am writing to endorse it. Besides the obvious advantages enumerated in your letter, there is another found in the added dignity and prestige which such a headquarters building would give to the Association.

THEODORE J. BRADLEY.

DENVER, COLORADO.

Replying to your circular of inquiry regarding the establishment of Official Headquarters and Experimental Laboratory for the working out of National Formulary and U. S. P. Problems, feel that it is a step in the right direction. Pharmacy has had very little recognition by our government, and it appears to me the establishing of the permanent Official Headquarters, such as outlined, would give us the prominence and recognition so sincerely desired, and you can rest assured that our firm, as well as myself, will do everything we possibly can to aid in this work. Yours very truly,

E. L. SCHOLTZ

LANSING, MICH.

As a member of the A. Ph. A. I most heartily cast my vote in favor of a permanent official headquarters and will gladly assist as far as possible to maintain such a project if carried out satisfactorily. I would be more especially interested in the experimental laboratory feature of such a place. It has often occurred to me that the A. Ph. A. was not up to the minute in not maintaining such a laboratory at the present. It seems to me that a laboratory of this nature would be of great value not only to the A. Ph. A. members but to the entire pharmacy profession.

In my work as a food and drug official I often find discrepancies in the U. S. P. and N. F. which can only be definitely settled by extended laboratory work. At present each laboratory must settle these questions for themselves. Owing to the various other duties one is called upon to perform in an official capacity we do not find time to devote to these problems, consequently many of them go unsettled. Here such a laboratory would be of vast importance to all who find it necessary to use the U. S. P. for their legal standard. Another valuable reason for establishing such a laboratory comes to my mind at this time. I am investigating some of the medical and pharmaceutical fakes that are parading on the market. As you know, the A. M. A. and also some State Departments have investigated these things for years, but for all the publicity they seem to flourish as much, and I believe more than ever before. Here is another line of work that could very profitably be taken up by an association laboratory. It seems that this practice will never be stamped out until all of us get back of these things and let the public know how they are being swindled.

Very respectfully yours,

F. L. SHANNON.

BALTIMORE, MD.

Your circular letter asking for an expression of opinion in re "of the utility and desirability of a permanent home for the A. Ph. A." to hand. In reply I would say there is nothing that would be of more permanent benefit to the organization, as the research work done therein would more than repay any expense incurred, and would be of lasting benefit; beside, the urgent necessity of having a proper place of preserving the property of the Association.

Pardon me if I have gone farther than requested, but it seems to me should the project mature, it should be placed at our nation's capital, Washington, D. C., as this is the great Mecca of our own traveling public, as well as that from abroad.

With best wishes for the success of the A. Ph. A. in all its efforts, and the success of her General Secretary, I remain,

Fraternally,

LOUIS SCHULZE.

PHILADELPHIA, PA.

You have asked for some expression in regard to a permanent home for the American Pharmaceutical Association, and I comply herewith.

No man would dare question the need of an Association home after reading your editorial in the November issue of the JOURNAL, and I think that you take the proper attitude, when you say that "since the A. Ph. A. has given its services freely to the whole of American pharmacy, why should not the whole of American pharmacy contribute to a plant which would enable the Association to

greatly increase its usefulness to the cause which it represents?"

Our Association has reached its sixty-first year, and I think most of us will agree that it is old enough to go into housekeeping. The age of sixty-one calls to my mind the following rhyme:

"Brothers, I am sixty-one;
Now my work on earth is done;
Calm should follow after storm;
Hand me down the Chloroform."

But let us put it in another way for the good old A. Ph. A.:

Children, I am sixty-one;
My work has just begun;
To do the greatest good for many,
I need a home with room a-plenty.
If you'll just help me get a start,
You'll gain in wisdom, science, and art,
And more, you'll never need to roam
In search of true friends or a home.

I sincerely hope that you may bring this project to a realization and when the time comes, I shall help the good work as much as possible.

Trusting that you will pardon my attempt at poetry, and wishing you all possible success, I remain

Very truly yours,
ROBERT P. FISCHELIS.

BLUFFTON, IND.

I think that the "Association Home" suggestion is a good one and that it should meet not only with the approval, but assistance, of every pharmacist in America.

The establishment of this home will mean more to American pharmacy than one can possibly imagine or hope for.

The suggestion is right, the time is right, let every pharmacist assist and cooperate to make this "Association Home" a reality in the near future.

Yours respectfully,
M. A. STOUT.

NEW YORK CITY.

This is my first opportunity to answer your circular letter relative to an A. Ph. A. Home.

Of course, the project meets with my heartiest approval, for I have been one of those who have dreamed of such a pharmaceutical centre these many years. In 1901 (American Jr. Pharm 73, pp. 91 and 92) I urged that the proposed Procter Memorial take the form of a Pharmacy Building with research laboratory, where U. S. P. and N. F. revision work could be done. It is but a small step to the greater conception of an A. Ph. A. home, with offices, library, historical collections and such research laboratory, that was suggested ten years since.

Most earnestly do I hope that your plan will reach fruition and if I can do anything in my humble way to help the cause, by all means command me.

Sincerely yours,
H. V. ARNY.

NEW YORK CITY.

I am in receipt of your circular letter, under recent date, concerning the need of an Association Home.

That such a need exists cannot be denied, and I cannot imagine a dissenting voice among our large membership.

The next step will be to provide ways and means to accomplish the desired object. This means not only the establishing of an Association Home, but also the providing of means for its proper maintenance.

I feel confident that this most worthy object will be consummated in the near future and shall esteem it a privilege to be permitted to assist those interested in its advancement.

Very truly yours,
GEO. C. DIEKMAN.

MARSHFIELD, OREGON.

The proposition to establish a permanent home for the A. Ph. A. is a good one, and if the funds to meet the expense of same are in sight, the plan should be carried out as soon as possible.

The location of the headquarters should be as near the center of population as possible. It seems to me that St. Louis, Mo., would be the right place. Many members, no doubt, would favor Philadelphia because of its being the location of our oldest college of pharmacy, and of its being the cradle of scientific pharmacy in America, and its having been the home of so many illustrious leaders in our profession. It seems to me, however, that accessibility to the greatest number of the members should be the first consideration. Hoping to see the plan speedily carried out, I am, Yours very truly,

J. LEE BROWN.

SAN FRANCISCO, CAL.

Indeed I am most earnestly in favor of the Association having its own home. Besides all the advantages you point out in your circular letter, how exceedingly nice it would be for a member sojourning in the east to direct his steps toward his own "home" where he could meet kindred spirits and find kindred interests. It would seem to me that this more than anything else could cement the interests of the Association.

With sincere regards, I beg to remain

Respectfully yours,

FRED I. LACKENBACH.

ST. JOSEPH, MO.

First, last and always, let me say that I am in hearty accord with this "Home" movement. In the way of furnishing a permanent headquarters, a laboratory and a safekeeping place for proceedings, etc., of the Association, I do not believe the movement can be over-estimated.

Another and still more valuable asset to me it would be—and I believe to every other member of the A. Ph. A.—is an everlasting monument of American pharmacy. A memorial it would be to those who have striven and died in pharmacy's cause; a pleasure for us now laboring in the field; and a perpetual joy for the oncoming pharmaceutical generations.

If at any time I can be of assistance to you or to the other officers in furthering this cause, I would be only too glad to render whatever service I might be able to give.

Yours respectfully,

BERNARD W. MCFALL.

BOSTON, MASS.

Your editorial in the November JOURNAL of the A. Ph. A., "The Need of an Association Home," is certainly in the line of progress for which the Association stands.

The advantages of a carefully preserved library with laboratories for pharmaceutical and chemical research, combined with permanent official headquarters, would be inestimable.

In my opinion it would be in keeping with the dignity of the A. Ph. A. and another step towards the advancement of this organization for that which is highest and best in American pharmacy.

I believe that loyalty to the Association would induce many members to contribute toward this object.

Yours sincerely,

JOHN G. GODDING.

NEW BRUNSWICK, N. J.

In response to your circular letter in regard to the new home for the Association, would say that I greatly favor such a movement. I have thought that it might be well to see what could be done in combining such a home with the Lloyd library; possibly this is not feasible.

Another suggestion occurred to me that the financial end could possibly be reached by a movement to increase our endowment fund.

Very truly yours,

F. B. KILMER.

PHILADELPHIA, PA.

I wish to raise my voice in approval of your suggestion that the A. Ph. A. should have a fireproof building as a permanent home, in which to preserve its incalculably valuable records—for the archives of the A. Ph. A. are an important portion of American history, and we should appreciate their value to such a degree as to provide for them a safe repository.

God speed the day when the realization of the well-nigh assured guess as to its accomplishment becomes a fact—to be chronicled in the history of American pharmacy.

I feel certain that sufficient pride exists amongst the rank and file of our members to guarantee the proper maintenance of such a building, and were the Association possessed of such a very valuable asset large numbers of those outside of the fold of the A. Ph. A. would hasten to become enrolled as members.

If there is *any* possibility of the Association being enriched in the manner aforementioned, keep an eternal vigilance upon the opportunity, so that nothing can cause the plans to miscarry from any cause whatsoever. It seems too good to be true. Then we could take up lines of activity that properly belong to our Association, which others have attempted to carry on—with very varying results.

Those of our calling responded to the appeals for contributions to liquidate the mortgage upon the home of our dearly beloved and lamented Hallberg in a generous manner, speedily, and the object sought was an accom-

plished fact in a short space of time; and I firmly believe that they will stand by and support our beloved Association just as nobly and generously, when requested to do so, for such a praiseworthy forward movement in the interests of each and every votary of pharmacy.

I cannot see how anyone with a drop of true-blue pharmacceutical blood in his frame can be opposed to this windfall to his calling, and I would be greatly surprised to hear of any opposition to the project.

May this possibility become a reality in the near future is the sincere prayer of

Yours cordially,

FRANKLIN M. APPLE.

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THE NATIONAL DRUG TRADE CONFERENCE.

In order to learn the true status of the Harrison Bill and Mr. Harrison's intentions I went to Washington on February 20th, after having made an appointment by wire. Mr. Harrison received me, was the same courteous gentleman that he was at the time of our Conference, gave me all the time I wanted and specifically advised me that on account of the congested condition of affairs in Congress in relation to the appropriation bills he had concluded not to report the Harrison Bill out at this session, but that it was his intention to present the bill immediately after the convening of the special session of Congress and to use every effort to have it enacted. He feels that any draft approved by the Conference should be the foundation of the new Harrison Bill, and as we all realize that in our haste the Conference Bill was not perfect and could be altered in some particulars to advantage I feel that it is the duty of the accredited delegates to the Conference to get busy, offer such suggestions and amendments as they have to the Conference Bill, have them submitted to a special Committee or to the Executive Committee, have a draft prepared and have the draft prepared by the Committee together with the different suggestions submitted to the Conference for its approval or correction at a meeting which I feel should be held early in April.

The form of organization of the Conference will require a motion to carry this into effect, to be submitted to the Executive Committee or to the members of the Conference.

I hope you will get busy on this proposition at once and will be very glad to have any suggestions that you may have to offer.

J. C. WALLACE,

President National Drug Trade Conference.

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FENCE FOR STOLEN DRUGS.

One ounce of aspirin and two balls of opium were among the loot stolen by an employe of Parke, Davis & Co.'s Drug and Chemical Department, who engaged himself under the name of Frank Myers. It came out in the course of the trial that his correct name was Anthony Kraft. The culprit was fined $10 or thirty days.

There is reason to believe that there is a widespread conspiracy having its wires in the wholesale and manufacturing concerns of the country with a regular system of fences, provisions for reassortment of stocks into half dozens, dozens, etc.; and that this accounts for the peddlers who visit retail druggists in certain sections, offering them particular items at prices that really put the retail druggists upon notice that the goods are stolen.

SUDDEN WHITENING OF THE HAIR.

In the case reported by Loeb a man of 51 became paralyzed on the left side in consequence of a cerebral hemorrhage and was unable to speak for a week. By the end of this time the moustache, eyebrow and hair on this side had turned entirely white while on the other side the normal color had been retained. Berger has reported two similar cases of the hair turning white on the side of the paralysis, and Loeb regards this material as sustaining the assumption that nervous influences alone are able in certain conditions to turn the hair white suddenly.—*Journ. A. M. A., Vol. LX, p.* 635.

Of General Interest

NATIONAL ASSOCIATION OF MANUFACTURERS OF MEDICINAL PRODUCTS.

THOS F. MAIN, PH. G., NEW YORK, N. Y.

The first annual convention of the National Association of Manufacturers of Medicinal Products was held in the state apartments of the Waldorf Astoria Hotel, New York City, February 11 and 12, 1913.

President Frank G. Ryan, after calling the meeting to order, accorded the privileges of the floor to delegates from sister associations, when Frank E. Holliday, General Representative of the National Wholesale Druggists' Association; Henry W. Merritt, President of the National Association of Retail Druggists; Thos. F. Main, Honorary President of the American Pharmaceutical Association, and Dr. W. C. Abbott, of the American Association of Pharmaceutical Chemists, presented greetings from their respective associations, with cordial good wishes that the meeting might be a most successful one and that the Associations might work in unison to solve problems of common interest to the drug trade.

In President Ryan's admirable address he stated that the first year of the Association abundantly proved that it had a great field for work and could become of immense value not only to its own members, but to all branches of the trade; he noted the necessity for securing state laws which conform to the Federal law, making the Federal law the standard for all; that it should be part of the work of the Association to supply proper data upon which laws can be formulated, legislators generally welcoming real information of an unbiased character; it should be the aim not only to oppose laws inimical but to suggest methods by which the interests of all may be properly conserved; he believed that officers delegated to carry laws into effect should confine their efforts to enforcing the laws as written and approved by legislative bodies, being careful not to encroach on the law-making power.

The reports of the officers and committees were of a very high order; the reports of Secretary, Committee on Legislation, and the delegates to National Drug Trades Conference, taken as a whole, form a valuable resume as to the enormous amount of legislation affecting the drug trade attempted during the past year, and gave special attention and prominence to the preamble and resolutions passed by the National Drug Trades Conference (called together by the American Pharmaceutical Association) on uniform State and Federal laws and to its admirable work in preparing a substitute for the Harrison Anti-Narcotic bill, which was accepted by Congressman Harrison and introduced into congress as H. R. 28277, which if passed will save the drug trade of the country at least $1,500,000 a year, while it is entirely in accord with the aim and purpose of the proposed legislation.

The following resolutions were adopted:

Urging the postoffice department to increase from 12 to 16 ounces the quantity of liquids that may be sent by mail.

Approving of one-cent letter postage.

Ordering the Executive Committee to give consideration to imitations of labels and trade marks, with particular reference to imitations originating in foreign countries.

Requesting the Bureau of Weights and Measures of New York state to interpret their regulations as to tolerances, to the definition based upon an interpretation of statement of net weight, measure, or amount, as meaning "not less than a minimum quantity."

Protesting against the admission free of duty of medicines, surgical instruments, and appliances for use of hospitals which receive pay for any services in the treatment of patients.

Recommending the Executive Committee to take up with the authorities at Washington the subject of imposition of rectifiers' tax on manufacturers who recover alcohol from exhausted drugs.

Providing for a special committee to report on "suitable containers" in their relation to

deterioration of medicinal and pharmaceutical products.

Urging upon the United States postoffice department the issuance of an order extending special delivery service to parcel post packages.

That any legislation restricting interstate commerce in narcotic drugs should make no discrimination on the basis of dosage between liquid and solid forms of medicines.

The Association also adopted a minute reaffirming its attitude on the subject of anti-narcotic legislation as expressed at its initial meeting; it approved the action of its delegates to the National Drug Trades Conference in cooperating to eliminate objectionable features from the Harrison anti-narcotic bill, which resulted in the amended bill H. R. 28277, and in the event of this bill not becoming a law, instructed its delegates to the conference to cooperate in securing a just and reasonable measure.

The officers for the past year were unanimously elected to serve a second term: President, Frank G. Ryan, of Parke-Davis & Co.; Vice-President, Alolph G. Rosengarten, of Powers-Weightman-Rosengarten Co.; Treasurer, Dr. Henry C. Lovis, of Seabury & Johnson; Secretary, Charles M. Woodruff. Executive Committee, Dr. Alfred R. L. Dohme, of Sharp & Dohme; Charles J. Lynn, of Eli Lilly & Co.

At the banquet following the close of the meeting, Clarence O. Bigelow, President of the New York Branch, represented the American Pharmaceutical Association; the special guests of the evening were Professor Joseph P. Remington, who spoke upon the progress of the revision of the United States Pharmacopoeia, and Dr. Carl L. Alsberg, the newly appointed chief of the Bureau of Chemistry of the United States Department of Agriculture, whose remarks, as being his first public address since his appointment, were listened to with great interest. Caswell A. Mayo spoke for the pharmaceutical press.

Doctor Alsberg's personality and his moderately conservative speech favorably impressed his hearers and it is safe to say that he enters office with the best wishes of the entire drug trade, coupled with the hope that he may be able to enforce the National Pure Food and Drugs Act uninfluenced by the theories of fanatics or the schemes of the self-interested.

POLICY OF THE BUREAU OF CHEMISTRY IN ENFORCING THE FOOD AND DRUGS ACT.[1]

CARL L. ALSBERG, CHIEF OF THE BUREAU OF CHEMISTRY.

I am particularly glad to make this, my first public statement of policy, before you gentlemen because I believe that the Bureau of Chemistry has no more important task than the problem of dealing with drugs and medicinal preparations. The brevity of my tenure of office renders what I am about to present to you, I regret to say, merely an outline of the principles by which the Bureau of Chemistry is to be guided. I would far prefer at this time to make no statement at all, but to wait and let the work of the Bureau speak for itself. As it is, I feel like a man who is "kiting" a check. I hope that the checks which in behalf of the Bureau I am about to make out to the order of the people may be amply covered before they are presented for payment. I realize fully that this will be no easy task.

In addressing an audience such as this, I feel that much that I would say to other industries would be out of place here. To most branches of the food industry, for example, I would say that the Bureau hopes to cooperate with them in placing their processes upon a scientific basis, in eliminating waste, and in utilizing by-products to the best advantage. I would say that the Bureau hopes to do for them what other bureaus of the Department of Agriculture are doing for the farmer. Great benefit to the consumer must result from such a source. To say such things to you would be almost an impertinence, because, if I am correctly informed, you gentlemen are fully awake to the value of science and research in practical manufactures. Most of you employ a large staff of chemists and other experts, and practically all of you are constantly conducting investigations designed to perfect your output, to cut down the cost of production, to improve existing products or to create new ones for the benefit of mankind, as well as of yourselves. Many of you realize that the time

[1] An address delivered before the National Association of Manufacturers of Medicinal Products, Feb. 12, 1913.

has come for the cooperation of the medical investigator and the manufacturer of remedial agents. It may be that there are some who fear that such cooperation will commercialize the medical profession. I am not one of them. It has been amply shown that the solution of many therapeutic problems may be largely a matter of money. It often takes tremendous resources to carry such a work to a successful issue. Few private investigators and few institutions command them. Here manufacturers may and do step in to help the investigator. As you all know, some of the greatest therapeutic advances of recent years, notably Paul Ehrlich's salvarsan, or 606, and the coal tar products, would have been impossible except for such cooperation. The fact that the manufacturer offers his help as a speculation by which he hopes to gain does not alter the fact that the net result may be of immense benefit to mankind.

While, therefore, I wish to assure you that the Bureau stands ready to cooperate with your Association, because such cooperation is to the best interest of all, we feel that you have learned the lesson of the application of science to practical things so thoroughly that only in the exceptional instance do you need a helping hand.

There is, however, a different field which is crying for cooperation between you gentlemen and the interests allied with you and the government. This is the matter of the control and regulation of the handling and sale of drugs and their preparations, particularly patent medicines and the narcotics. I know that in appealing to you on this subject I am entering debatable land. But this the Bureau has to do sooner or later, and I am of the opinion that it can not begin too soon.

The eyes of the people have, in the past, centered upon the Department's struggle for pure foods. The work of the Department has, I think you will all admit, been very successful in improving the quality of our foods and preventing the grave forms of fraud and adulteration. We realize fully that much remains to be done, but public confidence has been won; and precedents have been created. No backward step will be taken. There will be no let-up in the enforcement of the Pure Food and Drugs Act. If at any time we seem to accomplish less than appears to you possible, I trust you will realize that under the law our powers are limited; that we have no control over local conditions, and that we can control such local conditions only indirectly through our influence on imports and on interstate commerce. Conditions throughout the Union will be right only when each and every state passes, and enforces, adequate food laws; and when these laws have been unified and harmonized with those of the federal government. I hope that the consumers in every state where such laws are inadequate or laxly enforced, will bring such pressure to bear that these local conditions, over which the Bureau has no control, will be remedied.

While the efforts of the Department of Agriculture, in so far as the control of the food products over which it has jurisdiction is concerned, have been attended with considerable success, this has been true to a less degree with drugs and medicines. The fault has been in part with unforeseen loopholes in the law. I do not wish to imply that nothing has been accomplished. On the contrary, as you are well aware, through the great powers over imports vested in the Secretary of the Treasury, the Department of Agriculture has succeeded in keeping out of the country all crude drugs of an inferior quality.

The benefit to medicine and pharmacy has been immense. To accomplish this end is a very simple matter, because the Secretary of the Treasury has absolute power to exclude from the country any drug which may be in violation of law or is deemed injurious to the health of the people of the United States. These treasury decisions are based upon reports by the Secretary of Agriculture, of findings made by the Bureau of Chemistry.

These powers of the Secretary of the Treasury have been exercised not only over crude drugs and medicinal preparations, but also over so-called patent medicines whenever these made claims upon the label of curative powers which were false or misleading in any particular. Such quack medicines defraud those suffering from the pernicious activity of their imagination. They do incalculable harm to the misguided sick who grasp at the false hopes they hold out. The Secretary of the Treasury, on the recommendation of the Department of Agriculture, is excluding all such undesirable aliens. If we must suffer from and be mulcted by the proprietors of nostrums we may now have at least the poor comfort of knowing that

we suffer injury at the hands of our own people and that we keep in the land the money we pay to boot. No legislative tariff wall could more effectively protect the home industry. I regard it as the most important immediate duty of the Bureau to curb a traffic between the states in worthless nostrums.

It is true that the foreign nostrum which is excluded today because of the extravagant claims on the package may be admitted tomorrow if the label has been purged of these objectionable features. Nevertheless the effect is most excellent for a quack medicine which makes no extravagant claim on the package must, in order to find a large sale, make such claims in its advertisements in the press. This most of the alien nostrums apparently find impractical to do, so that the action taken by the Secretaries of Agriculture and the Treasury is very generally effective in protecting the people from alien frauds.

It is far different with the domestic nostrums. Because the domestic manufacturer knows how to advertise, no existing Federal law can adequately protect the people. The Sherley Act will, we hope, enable us to compel the removal of all false and fraudulent matter from the package. It will, we hope, enable us to compel the removal from the package of all therapeutic claims that can not be substantiated. We are confident that in spite of reams of testimonials these claims will shrink into insignificance in the vast majority of cases. But even if we succeed in this, and we shall leave no stone unturned, the beneficial effect will be more apparent than real. The Sherley Act is at best only a partial protection. It gives the Department of Agriculture power to regulate the labels of these nostrums, but not their advertising. This has, to some degree, been controlled through the Post Office Department. As long as our press continues to print the advertisements of nostrums, ways and means will be found to hawk them about the country. Several such ingenious schemes have already been put into practice.

Gloomy as the outlook seems, there is yet a ray of hope. It is the attitude of a small but powerful portion of the press itself, which has voluntarily scoured its advertising columns till they contain only clean and honest matter. The movement is spreading. Let us hope that its progress will be so rapid that it will make legislative control of advertising unnecessary.

That public sentiment and a sense of justice and public service induce individuals to sacrifice their own self-interest, is one of the hopeful signs of the times. It gives one a thrill to realize that this spirit is not peculiar to the press which one expects to fashion the country's ideals, but that it is to be found everywhere. It has been exemplified in a most striking way by one of the largest concerns of the country, which has announced that it will no longer deal in patent medicines. It has substituted non-secret preparations of recognized merit. Let us hope that others will follow the trail thus blazed. I am proud to say that the chemist of this concern, who, I am told, was probably involved in this pioneer reform was formerly a scientist in the Bureau of Chemistry.

Even if we succeed in protecting the people from quack medicines, a great task remains. This is to protect them from habit-forming drugs, such as opium and cocaine. We all know their sad effects. We all are agreed that something must be done to control their sale and distribution. The only differences of opinion concern the best means of accomplishing this end. Since it is often stated, without serious contradiction, that only one-third of the cocaine which is imported is used for legitimate therapeutic purposes, all must agree that the situation demands drastic measures. Without the help of the Federal Government, no reforms can be introduced because the States by themselves can not control the supply. As long as State officials have no means of ascertaining how much opium and cocaine is being shipped into a State and to whom it is consigned, it is evident that they are powerless to limit these and similar drugs to their legitimate uses. If these drugs were produced in this country, it would be exceedingly difficult to keep track of and to trace the supply. The situation would be analogous to that of moonshine whiskey. It would require an expensive police force to control the supply of these drugs and it is doubtful whether this control could ever be made efficient. Fortunately the situation is not so difficult. Virtually all our supply of these drugs is imported. It is, therefore, feasible if the State and Federal Governments cooperate to keep an accurate record of the fate of all of each consignment imported

through the wholesaler and jobber down to the pharmacist, physician, dentist and veterinarian. If the Federal Government does its share, State officials by an examination of Federal records will be able to learn what quantities of narcotics are coming into the State and to whom they are consigned. Each State will then be in a position to control these scourges of our peoples. If it fail to do so it must shoulder the responsibility.

The Federal Government can bring this about by virtue either of its taxing power or by virtue of its control over interstate and foreign commerce. The Harrison Bill now pending before Congress is based on the taxing power, proposing as it does that each handler of these drugs must be licensed by the Commissioner of Internal Revenue. To me it seems a step in the right direction. Should it fail to pass or should it prove ineffective it is certain to result in far more drastic measures. This evil must be stamped out. I propose to use every lawful means at the command of the Bureau of Chemistry to accomplish this end.

Gentlemen, that is in essence what I have to say tonight. I know that I have told you nothing new. If I am in error in any particular, I stand ready to be set right. My excuse for telling you an old story is that I could not otherwise make clear to you my attitude on certain matters which are vital to us all. I wish to have a clear understanding with you. I hope that now we understand each other and that, therefore, we can grasp hands across the table and pledge each other to work together for the common good.

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ADDRESS OF THOS. F. MAIN TO THE NATIONAL ASSOCIATION OF MANUFACTURERS OF MEDICINAL PRODUCTS.

Mr. President and Members of the National Association of Manufacturers of Medicinal Products:

I deem it both a pleasure and a privilege to be delegated by President William B. Day of the American Pharmaceutical Association, which is the oldest Society of the drug trade that is national in its character, to bring its greetings to your Association of Manufacturers of Medicinal Preparations, which I am informed is the youngest national organization of our trade.

History seems to establish the fact that the manufacture of medicinal chemicals and pharmaceuticals in the United States was largely stimulated by some research work done by a young student at the College of Pharmacy of the City of New York in 1846, who discovered that a large percentage of the chemicals and pharmaceuticals then imported, and for the supply of which the trade relied on European manufacturers, was grossly adulterated. This discovery of Ewen McIntyre, for that was the name of the young student, resulted first, in the passing by Congress in that year of a law which required all imported drugs to conform to certain general standards of purity, and second—to the founding in 1852 of the Society I have the honor now to represent, The American Pharmaceutical Association, the aim of which as stated in its constitution, being:

"To unite the educated and reputable pharmacists and druggists of America, in securing—'the improvement and regulation of the drug market by preventing the importation of inferior adulterated drugs'—'to improve the science and art of pharmacy by diffusing scientific knowledge,'—'by fostering pharmaceutical literature, developing talent, stimulating discovery and invention,' and—mark this, gentlemen—*'by encouraging home production and manufacture in the several departments of the drug business.'*"

That home production and manufacture have been encouraged in the sixty-one years that have elapsed since the American Pharmaceutical Association was founded, the formation of your own Association is an eloquent witness, and at this time it is safe to say that our makers of medicinal chemicals turn out goods equal to the world's best products and that in the manufacture of elegant and standardized pharmaceuticals our laboratories practically lead the world.

Gentlemen, the young student of 1846 to whose research work the passage of the national drug law of that year, and the formation of the Society I represent was largely due, passed into the higher life a few weeks since, honored and respected by his associates in our Society of which he had been a member for forty years, by the pharmacists of the United States, and by all

who were privileged to know him in this city of his adoption. What a marvelous development in all branches of industry and manufacture occurred during his lifetime, and in this development the manufacture of medicinal chemicals and fine pharmaceuticals did not lag behind.

In the evolution of the manufacturing industries in the United States, it was inevitable, that the economy and ready standardization secured by manufacturing drug products on a large scale, would relegate to the splendidly equipped and manned laboratories of the present day, the manufacture of concentrated medicines of large use, as well as those demanding a high degree of technical skill, or special apparatus to manufacture; and it was also inevitable that in a manufacture the products of which have so much to do with the prevention and cure of disease, the mitigation of suffering and the preservation of human life, the highest standards must be maintained, and that no mistaken notions of a manufacturer, rivalries between manufacturers, no distrust or jealousies, no customs not in accord with sound business principles, can be allowed to interfere with the highest standards of excellence in all drug products.

And so, gentlemen, I believe that your Association came by evolution in due process of time, many of your members are members of my own Association; they know that in union there is strength, and it is eminently fitting that your Association and ours should stand together in work for the promotion of the best interests of Pharmacy and Medicine, and in creating and maintaining a standard of professional honesty equal to the amount of our professional knowledge, with a view to the highest good and greatest protection to the great American people of which we are a part and which it is our privilege and our duty alike to serve.

The American Pharmaceutical Association extends to your Association as a body its best wishes that you may have a most successful meeting, and invites your individual members who are not already connected with our Association, to join us, ours being the one Association in which all people connected with the drug trade, whether they are teachers, theorists, pharmacists, jobbers, manufacturers, or importers, meet on a common level, secure a common view point, and are thus better enabled to work together for the common good of all the people.

NATIONAL ASSOCIATION OF BOARDS OF PHARMACY.

MEETING OF THE EXECUTIVE COMMITTEE.

WM. MITTLEBACH, BOONVILLE, MO.

To start in operation the Dodds resolution on reciprocal registration, which was adopted at the Denver meeting, the Executive Committee of the Association deemed it best that a meeting of the committee be held at some central point. Chairman T. A. Miller, of Richmond, Va., thereupon called the same to be held at St. Louis, Feb. 4, 1913.

Promptly at the appointed hour and place, every member of the committee—T. A. Miller, of Richmond, Va.; J. C. Burton, of Stroud, Okla.; Charles E. Zinn, of Kansas City, Mo.; A. F. Sala, of Winchester, Ind., and Wm. Mittelbach, of Boonville, Mo., were on hand and the work taken up.

The meeting was held at the Planters hotel in one of the parlors. As invited guests, Burton Cassiday, of Terre Haute, Ind., president of the Interstate Association; H. G. Ruenzel, of Milwaukee, Wis., president of the Wisconsin board; Chas. Gietner, member of the Missouri board, and Dr. H. M. Whelpley, editor of Meyer Brothers Druggist, were on hand and entered freely into the discussion of the subjects presented. After an all-day consideration, it was unanimously agreed to push the subject matter to a successful issue as outlined in the Dodds resolution.

Secretary A. F. Sala was instructed to prepare articles of agreement embodying the several principles and conditions of the resolution and circulate them among the active members of the Association for their endorsement and signature.

The $5 National fee which is being objected to by two or three members of the Association, was carefully weighed and considered and finally fully approved by the Committee. Secretary Sala stated that about 40 applications for reciprocal registration had passed through his hands since the Denver meeting, and not one objected to paying the fee; showing conclusively that those desiring to take advantage of the arrangement, were willing to contribute toward effecting the same.

The Advisory Committee as created under the Dodds Resolution was elected at this meeting, and consists of Charles Gietner of

St. Louis, H. C. Christensen of Chicago, and E. B. Brandis of Richmond, Va. These men have ample time to visit the several Boards and lend their efforts towards harmonizing the work.

The Executive Committee believes that through this Advisory Committee good progress will have been made when the National Association meets at Nashville in August, and that reciprocity between the several Boards will be more nearly realized than obtains at present. This is a big undertaking, and will crystallize slowly. Boards must be patient and give their executive officers time and moral assistance. The personnel of the several Boards of Pharmacy in our country is of the highest character, and all are working towards one end—the better condition of pharmacy. A little more confidence is needed, and more liberal construction of the standard upon which we base comparison of our work.

Every one present at this meeting of the Committee believes the plan feasible, and that with proper activity and aggressive methods, the Dodds plan will solve the proposition.

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A TRIP TO EUROPE.*

During the last decade trips to Europe arranged by societies of all kinds have been undertaken with great success. Singing societies, veterans of the German army, teachers' associations, and various scientific societies have visited England, France, Germany and other parts of Europe and derived much pleasure and instruction from these trips.

These visits have been reciprocated by Europe, and a number of social and scientific societies from England and Germany have come to see our customs and institutions. No wonder, therefore, that American pharmacists should also think of such a journey, and the committee appointed by Dr. Ch. F. Klippert, the President of the German Apotheker-Verein of New York, and headed by Dr. W. C. Alpers is perfectly timely. Nor can there be any doubt that such an enterprise can best be undertaken by the Apotheker-Verein, whose members all speak two or more languages, and many of whom have visited Europe repeatedly and are therefore familiar with the traveling conditions of the various countries.

*Translated from the "Apotheker-Zeitung."

The idea of such a trip by pharmacists is not new. Some years ago, at the occasion of the world's fair at Paris, the American Pharmaceutical Association appointed a committee to submit plans to visit the fair in a body and hold the meetings on the steamer during the trip across the ocean. But many members feared that in case of inclement weather these meetings might prove a failure, and others did not like the idea that pleasure and entertainment should have a deciding influence on the selection of the place of meeting, and the project failed. A good financial plan was also lacking, and many feared the height of the expenses.

Profiting by the failure of that venture the present advocates of the plan hope to avoid these cliffs. In the first place, this is to be a general enterprise, open to every pharmacist and his friends, so that no constitution or by-laws of any existing society will be interfered with. As to the expense, it is true that but few of our fellow-pharmacists would be able to draw the full amount—at least $150 or $200 for each person—out of their business at one time, but with the aid of proper financiering this sum can be saved gradually. Suppose the trip will take place in two years, arrangements of regular monthly contributions can be made, which the contributor may withdraw at any time if he will not join in the enterprise. Monthly payments of $5 would accumulate to more than half the required sum, and $10 monthly be more than sufficient to defray all expenses. Everybody knows that it is much easier to save $10 a month than to draw $200 at one time.

The trip itself would serve a double purpose; first, pleasure and recreation, and second, instruction and information, and each participant can follow his own inclinations in this respect. The most beautiful parts of England, France and Germany—wherever the trip is planned—will be selected, and each one given full occasion to behold and admire whatever is worth seeing. Side-trips to points of interest to this one or that one will also be arranged. It may be supposed that the chemists, pharmaciens and Apotheker of the respective countries will contribute their share to the entertainment of the guests, so that the object of recreation will fully be reached.

At the same time, in planning the trip, due regard will be paid to information and instruction. Cities with world-renowned chem-

ical factories, like Elberfeld, Darmstadt, Hoechst, Leipzig, and others will be visited, in order to give the travelers an insight into the enormity of the European chemical industry. Also universities and schools of technology that possess chairs of learning or laboratories of particular interest to pharmacists will not be omitted and these visits will be of particular interest to our teachers and professors.

At the return each traveler will have the privilege of staying longer with friends and relatives in Europe or to extend the trip to other countries. We believe that among the 45000 pharmacists of the United States a sufficient number can be found whose "Wanderlust" will make them join such an enterprise, and we wish the appointed committee the best success.

Proceedings of the Local Branches

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

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CHICAGO BRANCH.

The Conference of representatives of pharmaceutical, medical, dental and veterinary associations to consider amendments to the cocaine law of Illinois held in Chicago, February 11th, was well attended, there being present representatives from the Illinois State Dental Society, the Illinois Veterinarians' Association, the Juvenile Protective Association, the U. S. Customs Service, the Illinois Board of Pharmacy, the Illinois Pharmaceutical Association, the Chicago Retail Druggists' Association, and the Chicago Branch of the American Pharmaceutical Association.

The debate was harmonious and many interesting facts regarding the illegal use of cocaine were presented. The statement was made that the druggists of Chicago almost without exception were vigorously observing the present law, but that the cocaine traffic was in the hands of a few debased criminals who obtained their supplies outside of Chicago and "wholesaled" it to others who supplied it to the "fiends." One of the worst features of the traffic is the constantly increasing number of cocaine habitues, largely due to the giving away by interested parties of a few "blows" of cocaine to school children and young habitues of poolrooms and saloons and their instruction in the use of the drug.

By resolution two important amendments were endorsed. First, that a minimum penalty, a fine of $100 for conviction for first offense, be included in the paragraph on penalties. Second, that it shall be unlawful for a person not a registered pharmacist, licensed physician, licensed dentist or licensed veterinarian to have in his possession at any time more of these drugs than can be obtained by means of a prescription.

As the law at present provides that no person shall sell or give away cocaine, etc., except upon the written prescription of a registered physician (wholesale druggists are excepted) and that no person shall under any circumstances sell or give any of these substances to a person addicted to their habitual use, it would seem as though with the added restriction above proposed it will be quite impossible for these cocaine dealers to escape conviction under the law.

The Conference also expressed itself as strongly in favor of the new Harrison Bill which aims at the federal control of the sale and use of habit-forming drugs.

An appropriation from the State for the proper enforcement of the cocaine law by the State Board of Pharmacy was also recommended.

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The February meeting of the Chicago Branch of the American Pharmaceutical Association was held Thursday evening, February 20, in the Assembly Hall of the Northwestern University building. Dr. James H. Beal, General Secretary of the Association, delivered a most instructive and entertaining lecture on the "Limestone Caverns of

America." The lecture was illustrated with views from Mammoth Cave, Kentucky, Wyandotte Cavern, Indiana, and Luray Cavern of Virginia. The views were beautifully displayed with the aid of a modern Bausch & Lomb balopticon. Both the lecture and pictures were highly appreciated by the large audience. At the close of the lecture a rising vote of thanks was extended Dr. Beal and he was cordially greeted by many Chicago friends.

The next meeting will be held on the regular meeting night March 18.

E. N. GATHERCOAL, Secretary.

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NEW YORK BRANCH.

A regular meeting of the New York Branch was held February 10th, with President C. O. Bigelow in the chair. There was no report by any officer or committee with the exception of the committee on the progress of pharmacy. Its Chairman, Dr. G. C. Diekman, quoted from the semi-annual report of Schimmel & Co. with respect to the sophistication of oil of bitter almond, oil of cinnamon, oil of clove, oil of bergamot, and oil of cubeb. He also gave brief abstracts of articles on the following subjects: "Lead in Alloys Used Upon Drinking Vessels," "Radium Emanations in Water," "Tests for Dust with Black Filter Paper," "Microchemical Identification of Alkaloids," and "Japanese Investigation of Infusion of Digitalis." In addition he referred to the prevalence of new remedies in Germany and the extent of drug adulteration in the same country, and the aspirin-acetylsalicylic acid controversy.

After being discussed by Messrs, McElhenie, Mansfield, Mayer, Mayo, Raubenheimer, and Weinstein this report was duly received.

Discussions were the order of the meeting. The first topic considered was "Uniformity of Drug Standards," and related to a contribution to the Journal of the Kansas Medical Society, by Prof. L. E. Sayre, of Lawrence, Kansas, entitled "A Plea for Uniformity in Drug Standards and for Uniform Requirements in Dispensing."

Professor Sayre's paper was read by Secretary Hugh Craig; it was an argument for the enactment of laws that would require the drugs dispensed by physicians to conform to the legal standards, and give to the proper State officials the right to inspect the drugs kept on hand by dispensing doctors.

John Roemer, who opened the discussion, pointed out the magnitude of the problem with which the paper dealt and declared that the conditions in New York State where seventy-five percent of all drugs sold were dispensed by physicians, were deplorable because the dispensing doctors gave no thought to the quality of their supplies but considered only the price at which the drugs could be obtained.

Jacob Diner believed that the first steps toward better conditions should be to discontinue the exemption of the physician from the provisions of the pharmacy law. This step he considered necessary for the protection of the public. Pharmacists, he said, could get the aid of the better class of physicians toward remedying the evil, but the physicians must be first assured that the pharmacists' drugs are above criticism. Pharmacists have taken thought in the matter advanced by Mr. Diner, said Dr. G. C. Diekman; and they are, to an increasing extent, putting quality above price.

Prof. J. L. Mayer called attention to the purpose of the American Society of Medical Economics to attempt to raise the standard of doctors' drugs. The carefulness of the pharmacist and his legal responsibilities were pointed out by Otto Raubenheimer who had knowledge of the poor quality of some of the drugs dispensed by physicians.

Dr. Joseph Weinstein was inclined to doubt the accuracy of Mr. Roemer's figures relating to the amount of drugs dispensed by physicians, but Mrs. St. Clair Ransford-Gay thought that Mr. Roemer's figures were too low.

On the motion of Mr. Roemer the matter was carried over to the April meeting for further discussion with the intention of seeking some advisable action toward the remedying of conditions.

The second discussion had to do with the women's section of the parent association. Mr. Craig, introducing the subject, quoted from letters received from Dr. J. H. Beal, the General Secretary of the Association, and Mrs. J. G. Godding, the Chairman of the section, to show that these officials were at a loss as to what the section was or should be. The general impression of the writers was that the section should afford a means for the formal recognition of women attending the annual conventions, and that its members

should be divided in two classes: women who are pharmacists, and the women relatives of members of the association. It was the opinion of Mr. Craig that to segregate women pharmacists in a separate section would be to deprive them of the privileges of members of the Association and would also entail a distinct loss upon the other sections. He favored an auxiliary for the non-pharmacists, to which women pharmacists might be admitted.

Mr. Diner thought that the interest in pharmacy of the women relatives of pharmacists was sufficient qualification to entitle them to membership in the association proper; and he was in favor of getting them to become members. Prof. Mayer saw no necessity for a separate section, but did consider an auxiliary for the non-pharmacists an advantage. C. A. Mayo favored some organization that would give the non-pharmacists a sense of being a part of the convention.

Miss Lillian Goldblatt declared that the men in pharmacy were too much inclined to look upon the woman pharmacist as a joke. She felt that women pharmacists were not wanted in the organizations where men were now practically alone. In her opinion it would be impossible to interest in one organization women whose interest is in pharmacy and those interested only in pharmacists. This idea was shared by Mr. Roemer. President Bigelow pointed out that the parent association had extended every recognition to women pharmacists.

Miss Charlotte Ransford was inclined to believe in the existence of opposition to women in pharmacy, but she did not believe that feeling prevailed in the American Pharmaceutical Association. Mrs. Gay opined that women pharmacists should participate as regular members and tnat there should be an auxiliary for the non-pharmacists.

The Branch went on record in favor of calling the new organization an auxiliary rather than a section.

President Bigelow and Mr. Mayo called attention to the pharmacal application of the proposed rules and regulations under the weights and measures of law.

The President appointed as the committee on fraternal relations the following: For New York County, Peter Diamond, George Kleinau, J. L. Lascoff, C. H. Lowe and John Scavo; for Kings County, W. C. Anderson, Otto Raubenheimer, T. D. McElhenie, Alexander Gardner and W. T. Creagan; for Westchester County, John Roemer, Samuel Schoenfeld, and W. H. Smith; and for Richmond County, C. N. Lehman, and F. W. Kerr. HUGH CRAIG, Secretary.

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DENVER BRANCH.

The January meeting of the Denver Branch was held Tuesday evening, January 21st, at the Brown Palace Hotel, a large number of members and several visitors being present, amongst whom were Senator Reynolds of Greeley and Prof. Washburn of Boulder.

After a very enjoyable dinner, President Best called the meeting to order and called on the Secretary for the minutes of the December meeting, which were read and approved. Hereupon the Treasurer presented the following report, covering from October, 1911, to date:

Receipts.

Cash on hand Oct. 31, 1911....	$16 70	
Branch dues (from 21 members)	21 00	
Branch dinner ($1 per plate)..	26 00	
Mr. Boutwell.....	1 00	
Nationaal Treasurer for members obtained through Branch	49 00	
		$113 70

Disbursements.

Postage	$15 21	
Stationery and printing.....	10 25	
Flowers	5 00	
Dinners given by the Branch...	53 00	
		83 76
Cash on hand Jan 21, 1913....		$29 94

There are two unpaid bills, one tonight's dinner and the other the printing of notices for this meeting. These are more than offset by the local dues for 1913, which are now due but none of which have been collected so far.

It was moved the Treasurer's report be adopted and the motion was seconded and carried.

The Secretary then read several letters received since the last meeting.

The election of officers being in order, Mr. Ford moved that President Best be instructed to cast the ballot for the officers nominated at the December meeting. The motion was seconded and carried, whereupon President

Best cast the ballot declaring the following elected:

President—Mr. W. A. Hover.
First Vice President—Mr. C. H. Skinner.
Second Vice President—Mr. F. J. Lord.
Secretary-Treasurer—F. W. Nitardy.

He introduced the new President to the Branch and Mr. Hover responded with a fine speech of acceptance, touching on the great work of the A. Ph. A. and reasons for his deep interest in the Association, concluding by thanking the members for the honor conferred upon him.

President Hover then called on Prof. Washburn of Boulder, who responded as follows:

It was with pleasure that I received your kind invitation to attend this banquet and speak on the subject of "How Much of the Four Years' Experience Required by the State Law, Before One May Become a Registered Pharmacist, Should be Allowed for Graduation from a School or College of Pharmacy?"

I had a pretty definite idea on this subject before I began to prepare this speech, but the more I study the subject, the more indefinite that idea becomes. Like the professions of law and medicine, the first instruction in the art of pharmacy was imparted and transmitted solely by the apprentice system. Then, as in those professions, schools were established to ground the student in the fundamental principles upon which the profession is founded.

Unlike those professions, we still require, in most states, that the college course of instruction shall be supplemented by one or more years of apprenticeship before one may be admitted to practice. I believe it is well that this is the case and I believe it would be equally advantageous if similar requirements were exacted of the other professions.

In the discussion of the question at hand, three things must be considered. First, the public welfare and safety must be conserved. This I regard as the most important of the three. Second, a square deal must be given to those fitting themselves to enter the profession, whether it be by the school-of-pharmacy or the apprenticeship route. Third, higher education must be encouraged, for it is to this alone that we must look for any advancement in the science and art of pharmacy.

But to say just what is the equivalent, in practical experience, of a course of instruction in a school or college of pharmacy, is by no means an easy task. While the value of a college course must necessarily vary, depending upon many factors, such as the quality of instruction, the equipment of the school and the personnel of the staff of instruction, it is a fact that the methods of instruction and the facilities for doing the work in the recognized schools and colleges of pharmacy are becoming more and more of a uniform standard, due, no doubt, to the work of the American Conference of Pharmaceutical Faculties and of the Syllabus Committee.

While this is a recognized fact, it is also recognized that the value of apprenticeship experience depends upon a number of conditions, which in the very nature of things, it is impossible to control or even to regulate. I can imagine apprenticeship experience under such favorable conditions as to make it of equal if not superior value to any college training, but in how many drug stores do such conditions exist? Even if the proprietor is qualified to give such instruction, the chances are he is either too busy or has not the inclination. Only from those who are regularly engaged in teaching as a profession and who are paid for this service, may we expect any systematized and well-regulated methods of instruction.

Unfortunately the law makes no distinction, nor can it make any distinction, between experience gained in a store where the conditions are favorable for valuable instruction, and one where the instruction either does not exist or may even be positively bad. I have seen applicants registered on experience which was gained entirely behind the soda fountain, and which in my judgment, did not contribute any more toward the making of a capable pharmacist than an equal amount of time spent in a laundry or a lumber yard.

The experience upon which I became registered partook of both of these extremes. In one store the proprietor possessed all the qualifications for imparting instruction, and did so, much to my benefit, but in the other, neither the qualification nor the inclination were present, and the experience was of no more value in fitting me to become a pharmacist than clerking in any other line of retail trade would have done.

In deciding what should be done towards

the solution of this question in Colorado, I believe we may well look about us and see what the other states are doing. Accordingly I addressed two questions to the secretary of each state board, asking, "How much experience is required before one may present himself as a candidate for registration, and how much of this experience requirement is allowed for graduation from a recognized school or college of pharmacy?"

I received answers from forty-four boards, and have attempted to arrange them in groups in such a way as to show as nearly as possible what the various states are doing towards the solution of this problem. In looking over this list, I find that out of the forty-four boards from which replies to my questions were received, four states require five years' experience, thirty-three require four years' experience, and seven require three years' experience.

Of these, two states allow no experience-credit for work done in a school or college of pharmacy, while on the other hand, five states require no store experience of graduates from recognized schools, and in fourteen other states the full experience requirement may be done, in part or in whole, in a school or college of pharmacy.

Grouping them in still another way, I find that one state requires five years' drug store experience of graduates, another requires four years, two require three years, sixteen require two years, five require one year and five require no store experience, while in the remaining fourteen full time is allowed for work done in college even up to their full experience requirement.

A summary of these figures will show that a large majority of the states require four years' experience. Also that the average store experience required of graduates is two years.

I therefore suggest, Mr. President, that this body recommend to the State Board of Pharmacy of Colorado, that two years of the four required by our state law be allowed for graduation from a recognized school or college of pharmacy.

Professor Washburn's paper precipitated a warm discussion in which Messrs. Hover, McKenzie, Clayton, Bresler, Washburn, Seymour and Ford participated, whereupon Mr. Ford offered a motion that the Branch suggest to the Colorado Board of Pharmacy that two years of credit as experience be allowed to graduates of recognized schools of pharmacy towards the four years required by law. The motion was seconded and after a further discussion, participated in by Messrs. Best, Bresler, Hensel and Hover, was carried. The discussion then turned to the general education required by the Board of Pharmacy as a prerequisite to examination as well as the entrance requirements of the Pharmacy Department of the State University, Messrs. Washburn, Clayton, Bresler, Hover, Wilson and Boutwell taking part.

Mr. Nitardy suggested that the Branch consider the advisability of recommending to the State Board of Pharmacy the raising of the requirements for full registration and making the assistant certificate of more value by permitting an assistant to assume the management of a pharmacy during the temporary absence of the proprietor or manager, placing a proper definition on "temporary." He believed that such action would do much to elevate the standard of pharmacy in Colorado, as well as place a check on the too indiscriminate springing up of new stores and at the same time help to solve the clerk problem. The subject was discussed at some length, Mr. Hover stating that he thought it an important subject for the Branch to consider and suggesting the discussion be made a subject for the February meeting.

Turpentine was next considered, Mr. Nitardy reporting that several samples of pure turpentine had been declared adulterated by the State Board of Health, based on the report of the state chemist that the turpentine did not comply with the requirements of the U. S. P. as set forth in the Sulphuric Acid test.

Further investigation on part of the state chemist, Mr. Hover and Mr. Nitardy, however, had proven the turpentine to be pure and the Sulphuric Acid test of the U. S. P. faulty. The State Board of Health, recognizing the latter fact, withdrew its first finding. Further proof of the unreliability of the sulphuric acid test of the U. S. P. was derived from Bulletin No. 135 of the Bureau of Chemistry of the Department of Agriculture on "Commercial Turpentines, Their Quality and Methods for Their Examination," pages 17 and 29, and the semi-annual reports of Schimmel & Co., April, 1909, page 90; April, 1910, pages 111 and 112; April, 1912, page 125, and October, 1912, page 108. Findings in this case were such that it was

proven that even the latest tests required further investigation to make them reliable in all cases. The hour being rather late the matter could not be discussed in detail.

A new eight-hour law before the legislature was mentioned and briefly discussed. Mr. McKenzie then moved a vote of thanks to Professor Washburn, whereupon it was moved to adjourn.

President Hover invited the Branch to be his guests at dinner at the February meeting, which will be held Tuesday evening, Feb. 18.

F. W. NITARDY, Secretary.

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CITY OF WASHINGTON BRANCH.

The regular monthly meeting of the City of Washington Branch was called to order at 8 p. m., February 12, with President Lyman F. Kebler in the chair. In the absence of the Secretary, Dr. Henry E. Kalusowski was called upon to act as such, pro tem.

The President announced that the paper on Commercial Senna Siftings, prepared by Dr. G. W. Hoover, would be, in the absence of that gentleman, presented by Mr. D. K. Chestnut. Mr. Chestnut described the difficulties in obtaining senna siftings, and the result of the experiments undertaken to obtain such siftings comparatively free from ash and other foreign materials; further, the methods of cleaning by which the siftings can be cleaned to a degree that the ash content will not exceed the limit of 14%. Results obtained showed that out of an original bale of 352 pounds net, the ash content was 17.52%. By dividing the contents into nine portions, and following the cleaning process outlined, it was found that the lowest ash content in any portion was 9.48% and the highest only 10.63%. No difficulty was found in removing the sand and very little cost was added to the price of the siftings by the process followed. The discussion which followed indicated that the allowance of 14% ash was considered liberal.

Dr. George A. Menge called attention to the difference in the ash content of the leaves and the siftings, and that it would be possible to powder the leaves with much of the stems without the ash content showing the inferiority. This practice, Mr. Chestnut stated, would be quickly detected by microscopical examination. In closing the discussion, the necessity for cleaning senna siftings was strongly argued, it being pointed out that the nature and character of the foreign substances made their removal essential.

Dr. Kebler then presented a paper on the variations in the strength of Tincture of Iodine as frequently found in commerce. Specimens examined showed 1.97% and 1.3% Potassium Iodide, while others presented higher percentums. Very few samples came up to the U. S. P. requirements, although several contained more Iodine and Potassium Iodide than necessary. One specimen showed 9.26% Iodine and 5.23% Potassium Iodide. In the discussion which followed, Mr. Hilton stated that with the alcohol of the U. S. P., difficulty was experienced in dissolving the required quantity of potassium iodide, and offered this as an explanation of the inferiority of commercial samples. Mr. Wilbert believed that carelessness was accountable for much of the variation in the samples inspected, while Mr. Flemer called attention to the variable content of alcohol as shown in the samples of Tr. Iodine examined. He referred to the practical impossibility of complying, in every instance, with the requirement that the alcohol strength be stated on the label, and cited instances when it could not be done. The next meeting will be held March 12.

HENRY E. KALUSOWSKI,
Secretary Pro Tem.

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PITTSBURGH BRANCH.

The meeting of the Branch, Friday, February 14, was well attended by students of the Pittsburgh College of Pharmacy who are naturally somewhat worried over the possible success of proposed legislation, especially that proposition that threatens the elimination of the qualified assistant, which is one of the prominent features of the P. A. R. D. proposed pharmacy law. The discussion of the Pennsylvania Pharmaceutical Association bill and the substitute for it that Philadelphia proposes, and in what manner they differ, was opened by B. E. Pritchard, who made it very apparent to the young students in what manner their future hinges upon the outcome, and urged upon them the necessity for them to do all in their power to further the success of proper legislation such as

the State Association is working for, and prevent the passage of such a drastic Act of Assembly as that being urged by the P. A. R. D. Mr. Pritchard said you young men might as well drop out of pharmacy now, as the outlook under some of the proposed measures, if successful, is not very auspicious.

Dr. Louis Saalbach also urged upon the students to not only write to members of the House and Senators themselves favoring the P. P. A. bill, but to induce their employers to do likewise in self defense.

Dr. Blumenschein said the success of the P. A. R. D. proposition would be largely a matter of politics, as Philadelphia has more representatives and senators than Allegheny and several other counties combined, hence the druggists can swing more votes for or against any measure.

The policy of the P. A. R. D., he thinks, is to so cloud the atmosphere as to preclude the possibility of securing any legislation affecting pharmacy, which seems to be their desire at this time. Said Dr. Blumenschein, should the qualified assistant be legislated off the map, a considerable number of small drug store proprietors will have to eat their meals from the prescription counter, that is provided they can afford to pay for meals at all under the conditions.

Dr. Blumenschein directed attention to H. R. Bill No. 277, also known as the Alter Bill, which is directed against fraudulent advertising, and which, if successful, will do much toward eliminating the patent medicine evil and the advertising medical fakers of the day. A resolution was adopted endorsing this measure. He also commended the Hughes-Bacon bill now in the care of the Military Affairs Committee at Washington, the object of which is to secure higher rank and better pay for the army pharmacists.

Dr. J. H. Wurdack gave a very valuable talk on the nature of various rocks, and exhibited a large number of specimens of various kinds containing precious metals. A feature of his lecture was the submission of formulæ used in the producing of factitious gems, many of which he said are of greater beauty than the genuine stones and cannot be detected even by experts. To such an extent is this true that money lenders refuse to accept gems of that class as security for loans.

B. E. PRITCHARD, Secretary.

PHILADELPHIA BRANCH.

The regular monthly meeting of the Philadelphia Branch of the American Pharmaceutical Association was held February 4 at the Engineers' Club, President F. E. Stewart presiding. Upon opening the meeting the President announced the death on the 1st inst. of Treasurer William McIntyre, and suggested that the fore part of the evening be devoted to a memorial meeting, and then after an adjournment for five minutes the remainder of the evening could be spent in discussing the program mapped out by the officers.

Prof. Kimberly moved the appointment of a committee to draw up suitable resolutions to be sent to the family of Mr. McIntyre and to be recorded in the minutes of the Branch. The motion prevailing, the President appointed Messrs. E. M. Boring, F. M. Apple and W. L. Cliffe.

President Stewart read a note from Dr. C. B. Lowe expressing regret at being unable to be present to voice the esteem in which he held the departed brother, William McIntyre. He sent this tribute: "He was a man of sterling integrity, excellent judgment, an earnest worker along educational lines, and always deeply interested in matters pharmaceutical. His life should inspire every pharmacist, not to live for the mere accumulation of wealth, but to take an interest in the higher and better things of life which make for our brother's welfare."

The meeting being declared open for further remarks, a number of others availed themselves of the opportunity.

Mr. Cliffe said that during a number of years while he and Mr. McIntyre were business neighbors he had held him in high esteem for his high standard of manly character. To him "Mr. McIntyre always presented the aspects of a man faithful to the interests and welfare of his fellowman."

Prof. Cook, referring to the great work Mr. McIntyre had done in public education, said, "He was the intimate friend of all the school children in his neighborhood." He spoke also of the eagerness with which Mr. McIntyre greeted the advent of any new appliance intended to improve pharmaceutical processes.

Mr. Apple, speaking of various conversations held with Mr. McIntyre on the way home from Branch meetings, said that they

dealt nearly altogether with his school interests. He expressed the idea that, perhaps, Mr. McIntyre's enthusiasm for his school work, in a measure, hastened his death, he having over-exerted himself a year or so ago while working on one of the school-grounds in which he was particularly interested.

Prof. Kraemer said that to him "Mr. McIntyre seemed like the sun,—giving life and light eternal." Referring to his cheerful disposition under all sorts of circumstances, he said "He seemed like a plant,—transforming sunlight, as the rose, giving joy and pleasure to those about him."

Mr. Gordon recalled that Mr. McIntyre was the first President of the Philadelphia Association of Retail Druggists, and that it was only his tact and patience that brought order out of chaos of conflicting opinions on the part of members that threatened to disrupt the new organization.

Mr. Beringer, referring to the regularity and faithfulness with which Mr. McIntyre attended the meetings of the Branch and of the parent Association, said "The American Pharmaceutical Association has lost a most ardent worker whose place will be hard to fill."

Prof. Pearson felt that "Mr. McIntyre's life was an inspiration and worthy of emulation."

F. P. STROUP,
Secretary Pro Tem.

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CINCINNATI BRANCH.

ORGANIZATION MEETING.

A meeting was held at the Lloyd Library on Court Street, Wednesday evening, February 12th, for the purpose of petitioning the Council of the A. Ph. A. to grant permission to form a Branch, to be known as the Cincinnati Branch of the American Pharmaceutical Association.

By virtue of his office as Chairman of Committee on Local Branches, Mr. Theo. D. Wetterstroem acted as presiding officer, while Charles A. Apmeyer was chosen temporary Secretary.

Prof. James H. Beal was the first speaker of the evening and his address, setting forth the many advantages to be derived through the establishment of a Local Branch, was well received. Prof. John Uri Lloyd, in his usual happy style, gave a masterly talk on the "Progress of Pharmacy"; at the same time tendering the "Lloyd Library" as a meeting place for the new Branch. He was heartily greeted by all members present. Mr. Theo. D. Wetterstroem presented some original work on "Veratrum," exhibiting a number of fluidextracts and other preparations prepared from different samples of the drug, which brought about a very interesting and instructive discussion of the subject.

The chair appointed the following committees:

Organization—C. T. P. Fennel, Frank H. Freericks and Charles G. Merrell.

Nomination—Edw. Voss, Jr., William L. B. Brittain and Fred S. Kotte.

Program—Charles A. Apmeyer, F. W. Weissmann, Julius Greyer and Dr. A. O. Zwick.

The date of the next meeting was set for March 18th, and it is expected to be an enthusiastic one. The Committee on Program has in view a number of interesting events to be presented at the next few meetings.

CHARLES A. APMEYER,
Temporary Secretary.

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SAINT LOUIS BRANCH.

A regular meeting of the Saint Louis Branch of the American Pharmaceutical Association was held in the Saint Louis College of Pharmacy on Friday evening, January 17, with President Ilhardt presiding.

The minutes of the December meeting were read and approved.

The Chair then stated that the minutes of the first annual meeting held on October 22, 1912, and reported by Mr. J. A. Wilkerson, had not been presented. On supported motion, the minutes of that meeting were read and with one minor correction were approved.

The Secretary then stated that Mr. Ilhardt had handed him a typewritten copy of the Ilhardt-Smith paper, "A Quick Process for Preparing Solution of Citrate of Magnesium," as presented orally at the December meeting. On motion, seconded, and carried, the paper was received and ordered filed.

The Secretary read a letter from Doctor James H. Beal, General Secretary of the American Pharmaceutical Association, appealing to the members of the Branch to discuss the subject of an Association Home,

and to enter the Model Constitution and By-laws and the Model Program prize competition contests.

President Ilhardt then announced the names of the members constituting the committees and the Advisory Board of the Branch for current year as follows:

Legislation—H. O. A. Huegel, L. G. Blakeslee, F. W. Sultan.

Membership—W. P. Overstreet, F. G. Uhlich, O. C. Hanser.

Publicity—G. R. Merrell, W. A. Hickey, G. W. Collins.

Papers—Francis Hemm, J. P. Schoenthaler, Dr. R. E. Schlueter.

Manufacture—H. S. Merrell, Jr., Dr. C. E. Caspari, Ambrose Mueller.

Discussion—Leo Suppan, F. A. Haines, E. A. Sennewald.

Memorial—Dr. J. C. Falk, G. S. Lohmann, Mrs. B. G. Huffman.

Advisory Board—William Mittelbach, I. B. Miller, Adolph Brandenberger.

The program was then taken up and the Chair called upon Professor J. M. Good who read the article entitled "Protected Medicines and the Pharmacopœia" appearing on page 1327 of the December number of the Journal of the American Pharmaceutical Association. In discussing the paper Professor Good said in substance, that preparations intended for medicinal use and controlled by proprietary interests, should not be admitted into the United States Pharmacopœia; that preparations, the composition and method of manufacture of which are known to the producers only, likewise should be excluded from official recognition; that the unpopularity of proprietary concerns has been brought about by themselves due largely to their attitude toward the retail druggists in exacting of them exorbitant prices for their goods above the actual cost of production. He further stated that it is reasonable for us to expect them to protect their interests, but not to make misleading statements nor to misrepresent their products in order to create a market for them. He criticised severely certain foreign manufacturers of synthetics for the beguiling means resorted to in order to force their products upon the shelves of the retail druggists.

Professor Good spoke in complimentary terms of the good work the American Medical Association, Research Department, has done and is doing to stop these impostors from preying upon the public by exposing them and by publishing their fraudulent and deceitful methods in the Journal of the American Medical Association.

Professor Hemm concurred in Professor Good's statements and spoke further on the moral side of the subject. He said it is morally wrong for a conscientious pharmacist to allow or encourage extortion on his patrons' prescriptions and that we should protest against it and combat it as far as lies in our power. The dispensing of proprietary remedies, with protection of trade name or process of production, commanding extortionate prices, we are obliged to admit we cannot control and for that reason we should refuse them our endorsement. Physicians who permit themselves to be influenced by soulless concerns into prescribing their products of which in many cases the composition is even unknown to them are blameable for the success of many high-priced items and cause many poor patients to foot the tax, levied by our peculiar patent laws.

Professor Suppan then took the floor and fully agreed with Professor Good, in that, preparations intended for medicinal use, controlled by proprietary rights, and those, the composition and method of manufacture of which are trade secrets, should be excluded from the United States Pharmacopœia, but stated that there is, however, a class of preparations of which both the composition and the method of manufacture are known; they are produced principally in Germany and constitute the so-called "synthetics," dozens of which are placed upon the market every year; that they are subjected to physiological and pathological tests by disinterested investigators, and among them are a number which undoubtedly will find a permanent place in the materia medica. If they survive the period of patent protection in the United States (seventeen years), they have proved their efficacy and are worthy of recognition in our national book of drug standards. Continuing, he said that any proposal or suggestions on the part of the Committee on Revision of the United States Pharmacopœia to admit patent or trade-mark protected medicaments would result in the formation of a "lobby" of manufacturers, eager to have their products recognized, and they undoubtedly would bring some pressure to bear upon the members of the Committee in order to secure such recognition. On the other hand,

druggists of the United States entertain a strong prejudice against the German manufacturers of synthetics on account of the prices demanded by the latter for their products; that these manufacturers are not to blame for this, for it is a maxim in political economy that every producer and dealer seeks to purchase his crude material in the cheapest market and to sell the product derived therefrom in the dearest market. The cause of the high cost of synthetics is to be found in our patent laws, which grant a patent upon a product of a chemical nature as well as upon the process employed in manufacturing it, and the only relief can be found in amending our patent laws. Further, the prejudice against foreign-made synthetics, based upon just commercial grounds, is extended so far as to lead some druggists to offer resolutions at meetings of pharmaceutical associations condemning the employment by physicians and the laity of such substances altogether. This attitude is, of course, silly, but is apt to gain grounds.

Others who took part in the discussion were Messrs. C. T. Buehler, A. C. Schulte, Louis Lieberstein, J. A. Wilkerson, W. K. Ilhardt and J. C. Hoster. A vote of thanks was extended the speakers of the evening, and on motion, duly seconded, the meeting adjourned. J. W. MACKELDEN, Secretary.

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NASHVILLE BRANCH.

The Nashville Branch of the American Pharmaceutical Association met in Furman Hall Thursday, February 20th, with Dr. J. O. Burge presiding.

After the approval of the minutes of the previous meeting, a communication was read from Prof. A. H. Clark, Chairman of the National Membership Committee, approving the plans of the local committee to begin a general campaign of the Southern States for membership. A beautiful badge of unique design, showing Andrew Jackson's monument at the capitol in relief, was proposed for the members attending and referred to the proper committee.

Reports from the transportation committee showed efforts are being made to get the proper rates from the passenger associations. A full discussion of the plans for the entertainment of the convention here in August was indulged in by all present.

Dr. G. W. Hubbard, a new member of the Branch, was present and made some very helpful suggestions along this line.

The subject of State legislation was taken up and a committee consisting of Dr. E. A. Ruddiman, Wm. R. White, J. O. Burge, Dr. G. W. Hubbard, L. J. Pulley and C. C. Young was appointed to appear before the State senate committee on behalf of the repeal of the law allowing physicians to register as pharmacists without examination.

WM. R. WHITE, Secretary.

Obituaries and Memorials

Persons having information of the death of members of the A. Ph. A. are requested to send the same promptly to J. W. England, 415 N. 33d St., Philadelphia, Pa. Information as to the age, activities in pharmacy, family, etc., of the deceased should be as complete as possible. When convenient a cabinet photograph should accompany data.

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OSCAR OLDBERG, PHARM. D., LL. D.

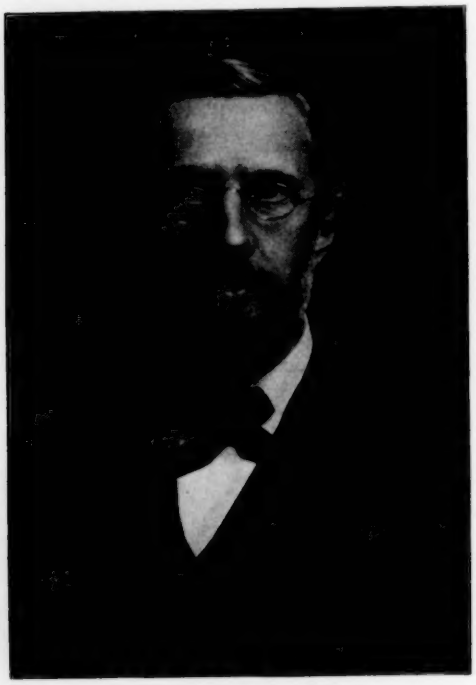
JANUARY 22, 1846—FEBRUARY 27, 1913.

With the death of Oscar Oldberg one of the beacon lights of the pharmaceutical world is extinguished; a light that has beamed so long and so steadily that it will seem as if a guiding star has sunk below the horizon. A guiding star he has been for the past thirty years, one that assured us that lofty ideals were not dead.

Born of a family of ministers of the Gospel, true pastors of a simple God-fearing people, he inherited the true nobility of character that kept him unwavering in the path of progress, with a firm belief that "right makes might" in all things on earth or beyond. Once a certain source of action became to him a conviction, no circumstances, no sophistications could shake him from pursuing that course and teaching the tenets of his faith. His pharmaceutical faith came to him by way of the father of modern chemistry, the great Berzelius. When young Oscar, son of Pastor Oldberg, in Helsingland, Sweden, left the public schools and the Gymnasium of Gefla, to follow his chosen calling, it was to enter the officine of one Frederick W. Helleday of the town of Falun. Helleday was a pupil of Berzelius and during the four years of customary apprenticeship, Oldberg had the benefit of the schooling, experi-

ence, and kindly offices of a private tutor in his master. In all his teaching in later years Dr. Oldberg repaid that debt by bringing to all those who came under his influence as a teacher, the best traditions of master and apprentice, as well as teacher and pupil.

When, in 1865, Oscar Oldberg, as a mature and experienced pharmacist, decided to make the new world his home, we find he adapted himself so well to the new conditions and surroundings that four years after his arrival he was appointed a member of the faculty of the School of Pharmacy of Georgetown and his career as a teacher continued with scarcely an interruption until his retirement. Teaching was his true vocation and whatever the subject he may have chosen for his life work his position would have been that of instructor. His energies would not allow him to confine himself to one line of work, however, and so we find him at one time representing his home country as vice-consul, at another he took care of an exhibition of chemicals and pharmaceuticals that was sent from this country to London; at another period he, in conjunction with Dr. Wall of St. Louis, manufactured chemicals and pharmaceutical preparations.



OSCAR OLDBERG.

Four years he served the country of his adoption in the capacity of chief clerk and medical purveyor in the Marine Hospital Service at Washington, here he did much to systematize the purchase and preparation of the medical supplies in that important branch of the Government service.

However, teaching was his true calling and other occupations gradually passed to the background. While in Washington he held the chair of Pharmacy and was Dean of the Faculty in the National College of Pharmacy and that institution conferred upon him the degree of Doctor of Pharmacy Honoris Causa.

He was called to Chicago to accept the professorship of Pharmacy in the Chicago College of Pharmacy in 1883, and was Dean of that institution until Northwestern University established a School of Pharmacy, to which he transferred his efforts and remained Dean of Northwestern University School of Pharmacy for a quarter of a century, until failing health compelled him to give up active service in the school.

On the occasion of the celebration of the twenty-fifth anniversary of the founding of the School of Pharmacy, Northwestern University conferred upon him the honorary degree of Doctor of Laws and subsequently awarded him a pension for the remainder of his life.

His life might have been prolonged many years had he been sparing of his energy, but he was a spendthrift of his strength, devoting his time without rest or vacation to his beloved work of improving pharmaceutical education.

To his pupils he ever preached as gospel "Go Out Into the World and Improve the Calling of Pharmacy." To pharmaceutical faculties and to state authorities he extended his wise counsel. For thirty years he served on the Revision Committee of the United States Pharmacopœia, and many changes and revisions were due to his untiring work, especially on the subjects of weights and measures and pharmaceutical nomenclature. He was ever active in the affairs of the American Pharmaceutical Association and served it in many capacities. He was its President in the year 1908-1909.

Coming from a country where the pharmacists were surrounded by all the privileges and benefits of a state-calling, he tried to give to American Pharmacy the benefit of

Europe's experience, although he fully realized that what best served the people when administered by a strong centralized government required many changes and qualifications before it could be applied to a young and vigorous democracy, where personal (sometimes rebellious) freedom is more valued than a kindly rigid paternalism.

Doctor Oldberg's teaching assumed broader scope than that of a classroom pedagogue. He was a teacher of teachers. His contributions to the current pharmaceutical literature were constant and always to the point. They helped to form public opinion on many questions regarding pharmaceutical legislation and education. He insisted on proper educational qualifications for those entering upon pharmaceutical work. A suitable preliminary education he fought for at all times and his pen was as effective as his vision was clear. "Without a Foundation How Can We Build"? He would ask this question and its unanswerable logic told. He did not lay undue stress on school honors or degrees but the substance, the mental training, he insisted upon.

The sophistry, "Give the poor boy an equal chance" with his more fortunate neighbor, never blinded him; he would answer, "If the boy is poor so much more the reason you should not mislead him." He had been a poor boy, he was a friend to the poor boy. He wrote a text for home study not to take the place of schooling, but the better to prepare the poor boy for such schooling, and his "Home Study" was the most widely known of all his writings. His books were numerous and served thousands of students in schools and out for their guidance in pharmaceutical matters. His latest work which he designed to contain the essence of all his teachings was finished under the greatest difficulty after his health had broken under the years of toil, when every effort was a source of pain.

He was never idle and for years he maintained a correspondence of no mean proportion with all who were interested in pharmaceutical matters. That interest he fostered and cultivated assiduously. His pupils found him a loyal friend, after they had gone out into the world, to whom they might turn at any juncture in their lives when in need of aid and advice.

His handiwork will be found in state legislation and in educational institutions for many years to come for he taught men to pass rational examinations and at the same time helped the authorities to frame tests, and examination questions along rational lines.

His work was finished some time before Providence removed him from our midst. He had gone to California to enjoy the restorative sunshine, but he went too late. Although the body lingered, the spirit was fleeing and finally departed from this world February 27, 1913. GEO D. OGLESBY.

RESOLUTION BY THE FACULTY, NORTHWESTERN SCHOOL OF PHARMACY.

March 1, 1913. At a meeting of the faculty called for the purpose of taking action upon the death of Dean Oldberg the following resolution was passed:

WHEREAS, By the death of our beloved Dean, Oscar Oldberg, the School of Pharmacy of Northwestern University has lost a peerless leader, a wise counselor and a true friend, whose guidance has been an inspiration alike to teacher and pupil during a long period of active service. Therefore, by this faculty, be it

Resolved, That we hereby acknowledge the inestimable value of his services to this School and the Pharmaceutical Profession. In his self-sacrificing efforts to achieve the things which his clear vision perceived to be for the good of his profession: In encouraging students to a better endeavor and higher ideals by his untiring zeal and devotion: And in his pioneer work of fostering higher pharmaceutical education and promoting legislation upon matters pertaining to Pharmacy. And it is hereby ordered by this faculty that this resolution be spread upon the records of the School and a copy suitably engrossed be sent to his family.

Respectfully submitted,
GEORGE D. OGLESBY,
M. A. MINER,
Committee.

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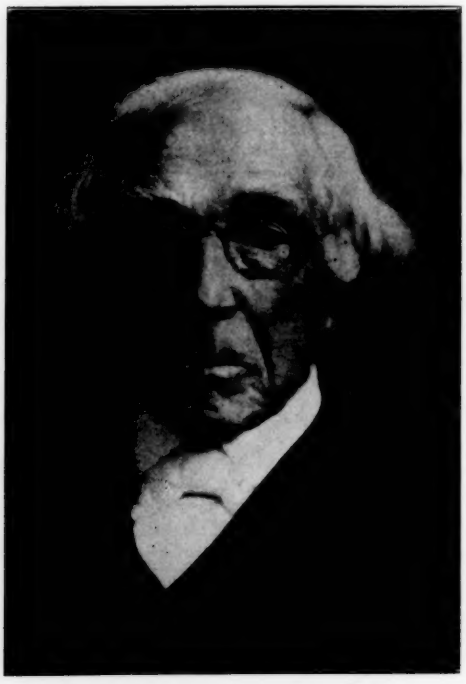
EWEN McINTYRE.

By WILLIAM C. ALPERS.

The death of Ewen McIntyre, on the eighth day of January, in his eighty-eighth year, removed one of the most remarkable and best known members from the ranks of American pharmacy. A man of the greatest and sweetest modesty in all his doings and words, reluctant to come forward, he was yet a towering figure and a national character among his fellow workers. He was a class by himself. For while he ranked with the old and was a living representative of pharmacy as practiced fifty years or more

ago, he was yet among the young and there was no vital question of the present time that he did not embrace with the full vigor of a progressive and active mind. Even his body seemed to have preserved this youthful freshness; the alacrity, the ease of movement, the ability of enduring fatigue, the fire of his little piercing eyes, stamped him as a man in the prime of life and only the silver threads of his long flowing hair betokened his age.

Ewen McIntyre was born in 1825 at Johnstown, Fulton County, N. Y., of Scotch par-



EWEN MCINTYRE.

ents. His childhood was spent on the farm of his father, where he remained till his seventeenth year, when he started for New York to hunt for work. It was his good fortune to enter the pharmacy of Dr. George D. Coggeshall, at Pearl and Rose streets, at that time a fashionable part of New York. He was here imbued with the true spirit of pharmacy that remained with him during his whole life. Mr. Coggeshall, a man of broad knowledge and liberal education, one of the founders of the American Pharmaceutical Association, took a deep interest in the bright country lad and started him on a career of success and honor. For seven years young McIntyre remained in his first position, taking at the same time a course in the New York College of Pharmacy, and graduating in 1847. Two years later he had saved enough to open his own pharmacy at Broadway and Eighteenth street. This neighborhood was almost rural at that time and McIntyre used to tell in later years how his friends tried to dissuade him from what they called a foolish enterprise. There was always a shrewd twinkle in his eyes whenever he spoke of his early business enterprise, but that was the only sign of his inner satisfaction for having so correctly foreseen the development of the city and by his selection laid the foundation of his future wealth. Soon after establishing himself a dispute arose with his landlord, but McIntyre quickly bought the vacant lot at the southeast corner of the two streets, where he erected a modest house and conducted his pharmacy till 1896, when he retired. The old house has since made place to a large modern business structure and netted the owner a considerable profit. In his enterprises Ewen McIntyre differed in one respect from most of his fellow pharmacists, in that he was successful and was able to withdraw from business in the possession of a healthy body and healthier mind. It is true he owed his success not alone to pharmacy, but to wise and profitable investments in real estate, taking advantage of the gradual enlargement of New York which he saw growing from a city of 200,000 to four millions of inhabitants. But this very shrewdness in discovering and grasping the opportunities that arose around him, distinguished him from most of his co-workers, who, absorbed in the daily routine of their arduous duties, fail to look beyond the walls of their business. And this correct judgment and quickness of perception characterized him to the day of his death and made him the safest and most reliable adviser in all the various enterprises with which his active mind was engaged.

This valuable gift of his mind he employed during the last twenty years of his life almost exclusively in the interest of his profession, and particularly in his pet enterprise, the College of Pharmacy of the City of New York. It is questionable if any other man can be found who gave better and nobler service than McIntyre. A student in

1846 at the age of 21, and a graduate in 1847, he was at his death the oldest living graduate of the school. During the twenty-five following years, the time of his successful work for a competency, he kept in constant touch with his Alma Mater, but refused to accept any office on account of the great amount of private business. In 1873 he yielded to the desires of his friends and became a trustee of the College; in the following year he was elected Vice President, and served as such from 1875 to 1876. The following twelve years (1877-1889) he was President of the College and guided its affairs with skill and success through the critical time of reconstruction. From 1890 to 1893 he was again a member of the Board of Trustees, and since then he has been elected annually Honorary President, which office he held at the time of his death.

A man who filled such exalted and honorable positions in one of the leading schools of pharmacy for so many years naturally was more than a mere ornament or dignified office-holder. He recognized the importance of the pharmaceutical education and saw his duty in devoting nearly his whole time to its elevation. Nor was this all. When it became necessary to pay off part of the heavy mortgage covering the College building, in order to reduce expenses, it was McIntyre who volunteered to do this work. Contributing himself a large amount, he went practically to every pharmacist in New York City and vicinity, pleading and arguing for assistance. No disappointment could deter him, no sneering words check his determination. With youthful enthusiasm and stern perseverance he went from door to door and raised through his own efforts the enormous sum of $30,000. Anyone acquainted with the closeness of the New York druggists can imagine what an amount of steady and persevering work it meant.

The American Pharmaceutical Association also lost a dear and valuable member in Ewen McIntyre. While he did not become a member till he was 48 years of age, in 1873, he always considered himself one of the founders of the Association, or at least one of those who gave the first instigation to its foundation. It was he who discovered, in 1850, soon after he had started in business for himself, that a quantity of Calcium Carbonate imported from England was largely adulterated with plaster of paris, and in a meeting of the New York druggists, he called attention to this adulteration. Other similar complaints were made and the desire of bringing these fraudulent importations to the notice of the federal government and finding means of checking them, led to the formation of the American Pharmaceutical Association.

In the last ten years of his life, Mr. McIntyre became a familiar figure in the meetings of the Association and his influence, although wielded in his usual modest and quiet way, was of no mean importance. His wonderful memory with its inexhaustible treasure of youthful recollections, became a source of recreation and pleasure to a large circle of friends, who always surrounded him and listened to his words. As Chairman of the historical section in 1906-7 he did splendid service and contributed a large fund of knowledge and reminiscences to the records of the Association. His efforts and services were further honored by his election as Honorary President in 1910.

The two Nestors of American Pharmacy—Ramsperger and McIntyre—followed each other quickly and left vacant places, hard to fill. Both were typical men. The one represented the old scientific German "Apotheker," full of knowledge and idealism; the other was a true example of wise and shrewd pharmaceutical enterprise without ever forgetting that stern honesty and higher aims are at the bottom of all success. They were intimate friends, and only a little more than a year ago, both sat together at the festive board, joking and laughing, and calling their neighbors, men of more than fifty years of age, mere boys. Whosoever had the privilege of gaining an insight into their hearts, knows the purity of their motives, the honesty of their thoughts and words, the broadness of their minds and the sincere and unselfish devotion to the cause of pharmacy.

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THOMAS PENROSE COOK.*

1849–1913.

Thomas Penrose Cook was called from his earthly labors on January 7, 1913. His membership in the American Pharmaceutical Association dates from 1878. From this time until the day of his death, a period of thirty-

*Expression of appreciation by the A. Ph. A. committee.

five years, his labors were continuous; he served on many committees and was elected Chairman of the Committee on Exhibitions and was local Secretary in New York City in 1907. His extensive acquaintance among wholesale and retail druggists gave him a large influence in Association work, and he had the great faculty of inspiring confidence in every association of which he was a member, for both officers and members instinctively felt that if Thomas Penrose Cook was entrusted with a duty it would be most thoroughly performed. He never tired of working for his fellows in every walk of life; sensitive, modest, enterprising and not "slothful in business," he had the rare faculty of retaining as personal friends and well-wishers those who in their business relations were compelled to oppose him. Thomas Penrose Cook was large-hearted and generous in the treatment of those with whom he had business relations as an employer, he was always ready to speak of others in the best terms that he could, and he did not do this as a policy; but was naturally kindly disposed towards everybody. His capacity for detail was extraordinary; this was exhibited in business, in association work, and in social affairs. He has been called home, but the members of the American Pharmaceutical Association will not soon forget the genial smile and the warm hand-clasp of our deceased friend; the recollection of his unselfish services will never cease.

Signed: JOSEPH P. REMINGTON.
WM. JAY SCHIEFFELIN.
C. F. CHANDLER.

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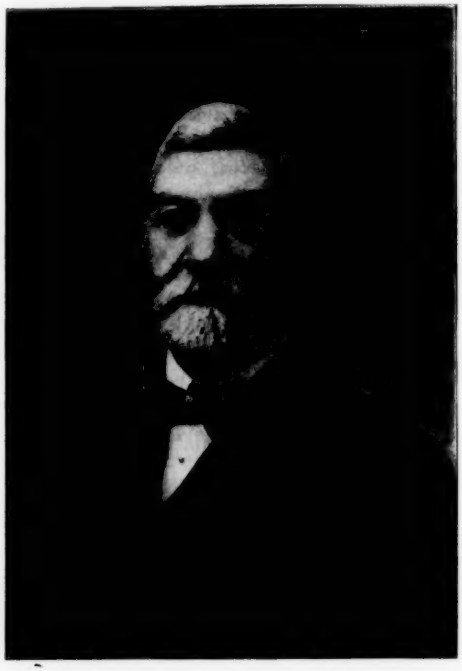
WILLIAM McINTYRE.

William McIntyre, Treasurer of the Philadelphia Branch of the American Pharmaceutical Association was stricken with apoplexy while tramping with the members of the Wanderlust Society on Saturday, February 1, 1913. He died in the Presbyterian Hospital.

Mr. McIntyre was an unusual personality. Born in Ireland in 1843, his parents brought him to this country in his infancy. He received his early education in the public schools of Philadelphia, after which he entered the employ of John Bly, a druggist of Frankford, Philadelphia, and then enrolled at the Philadelphia College of Pharmacy, graduating in 1863.

He opened a drug store in the early sixties, at Frankford Avenue and Thompson Street, Philadelphia, and later, at Frankford Avenue and Adam Street, where he remained about thirty-seven years; he retired from business six years ago.

Mr. McIntyre took a deep interest in his Alma Mater, becoming a member of the Philadelphia College of Pharmacy in 1869, serving as a member of the Board of Trustees from 1872 to 1886, acting as Registrar of



WILLIAM MCINTYRE.

the Pharmaceutical meetings and aiding in every way the growth and development of the college. In 1908, the Philadelphia College of Pharmacy conferred upon him the degree of Master in Pharmacy, honoris causa. He was an active member of numerous pharmaceutical organizations. He was a member of the Pennsylvania Pharmaceutical Association, the first President of the Philadelphia Association of Retail Druggists, and a member of the American Pharmaceutical Association since 1868.

He was actively identified with the man-

agement of the Philadelphia public schools. He became a director of the old Thirty-first Sectional School Board in the seventies, and for fifteen years held the position of school controller in the Thirty-first Ward. Since that time Mr. McIntyre was appointed a member of each of the four Boards of Education of Philadelphia. He was a member of the Committee on Elementary Schools, and other most important committees, and his practical business judgment was of much value in securing well-balanced school work. He was known to hundreds of school children, his genial temperament and kindness making friends of them all. As Chairman of the special schools committee, he worked to promote special kinds of training, such as cooking, sewing, manual training, and other branches that in bygone years were unknown in public education. He was much interested in establishing gardens in various school grounds throughout the city, and was an earnest and persistent advocate of physical training and recreation for school children.

Mr. McIntyre was a member of Kensington Lodge No. 211, F. and A. M., Kensington Royal Arch Chapter, No. 233, F. and A. M. He is survived by a widow, Mrs. Jennie McIntyre, and two daughters, Mrs. William Bayne, and Mrs. William Pedrick.

Personally, Mr. McIntyre was genial, warm-heated and lovable. He left his "footprints in the sands of time," in his devoted work for local pharmaceutical and public school interests, and we can say of him, in the words of Fitz Greene Halleck:

"Green be the turf above thee,
Friend of my better days,
None knew thee, but to love thee,
None named thee, but to praise."

J. W. E.

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JOHN E. HITCHCOCK.

John E. Hitchcock, of Plattsburgh, N. Y., died on February 17, 1913. He was born in Chicktawaga, N. Y., on September 13, 1864, and was the son of Henry C. and Ruth J. Hitchcock. In 1874 his family removed to Harrisville, N. Y.

He attended the public schools and later matriculated in pharmacy in the University of Michigan, from which he was graduated in 1891. He then took a position in Plattsburgh and in 1904 went into business for himself in which he was eminently successful, his store being one of the best known in Northern New York. Mr. Hitchcock was much interested in raising the standard of pharmaceutical practice and labored zealously toward this end. He was an active member of the New York State Pharmaceutical Association, and joined the American Pharmaceutical Association in 1892.

Personally, Mr. Hitchcock was a man of the highest probity and Christian character. He was a member of the First Presbyterian Church of Plattsburgh and deeply interested in the work of the Y. M. C. A. He was a Mason of prominence, being a member of Plattsburgh Lodge No. 828, F. and A. M., Plattsburgh Chapter No. 39, R. A. M., and DeSoto Commandery No. 49, K. T.

Mr. Hitchcock was never married and leaves two brothers, Arthur K., now in the U. S. Government service in the Philippines, and Harry C., a pharmacist of White Plains, N. Y.

J. W. E.

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LEVI TOWER.

Levi Tower, an old-time druggist of Boston, died at Cohasset, Mass., January 31, 1913, in his seventy-seventh year. He was born in Cohasset where he received his early education.

He entered the employ of J. T. Brown & Co., Boston, at that time one of the leading pharmacists, located at corner of Washington and Bedford Streets. Later he established himself in business at the corner of Washington and Worcester Streets. In 1879 he opened a pharmacy in the Back Bay District, corner Boylston and Clarendon Streets, and five years later established, with John G. Godding, the firm of J. G. Godding & Co., retiring from business in 1899.

He was a member of the American Pharmaceutical Association from 1860 to 1892, when he resigned. He was a life member of the Massachusetts College of Pharmacy.

Mr. Tower did not take an active part in pharmaceutical affairs, but lent his support to all organizations that advanced the interests of his profession.

He was a man of sterling character; keen

and far-sighted in business, kindly of disposition, and modest and retiring.

He leaves a son, daughter and two grandchildren. J. W. E.

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H. EDWARD WENDEL.

H. Edward Wendel was born in Philadelphia in 1844 and died January 16, 1912. He obtained his education in the public schools, and then matriculated in the Philadelphia College of Pharmacy, graduating with the class of 1865. The subject of his thesis was "Sambucus Canadensis." Later he engaged in drug business at the S. E. corner of Third and George Streets, Philadelphia, where he remained for about thirty-five years. He was one of the old school pharmacists and took a deep pride in the profession of pharmacy, and the drug-products he made. He was an active Mason, being a member of Richard Vaux Lodge No. 384, F. and A. M., Kensington Chapter No. 233, R. A. M., Mary Commandery, K. T., and Philadelphia Consistory, A. A. S. R. He leaves a widow and three daughters. J. W. E.

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J. C. ARTHUR ST. JAMES.

J. C. Arthur St. James died at Telluride, Colorado, on January 9, 1913. He was a graduate of the N. Y. C. P., 1903, and winner of the Trustees' prize for Materia Medica and Pharmacognosy.

His early practical training was received in the pharmacies of Thomas Latham and Henry Burmeister, of New York City. Going to Colorado about ten years ago in search of health, he located at St. Mary's Hospital, Pueblo, and afterwards held clerkships at Leadville, Breckenridge and Telluride.

He was later about two years in business for himself at Fort Morgan. His death marked a double tragedy—his bride of a week or two preceding him by two days, both victims of pneumonia.

Mr. St. James was the personification of high ambitions, energy, and deep earnestness of purpose, coupled with talents of unusual brilliancy.

He was born in Scotstown, Province of Quebec, Canada, and passed away before completing his thirtieth year.

Many friends mourn his loss, both in Colorado and the East.

THOS. LATHAM.

Council Business

COUNCIL LETTER No. 10.

PHILADELPHIA, February 20, 1913.

To the Members of the Council:

Motion No. 12 (*Change of Rule of Finance for Auditing Books*), *No.* 13 (*Prices of Bound Volumes of Proceedings*), *No.* 14 (*Appropriation for Delegates to National Legislative Conference*), *No.* 15 (*Election of Members; Applications Nos.* 40 *to* 59 *inclusive*), *and No.* 16 (*Change of Date of Annual Meeting to week beginning August* 18, 1913), have each received a majority of affirmative votes.

The following communication has been received from the Committee on Resolutions on the late Thomas P. Cook:

"THOMAS PENROSE COOK.

"1849-1913.

"Thomas Penrose Cook was called from his earthly labors on January 7, 1913. His membership in the American Pharmaceutical Association dates from 1878. From this time until the day of his death, a period of thirty-five years, his labors were continuous; he served on many committees and was elected Chairman of the Committee on Exhibitions and was local secretary in New York City in 1907. His extensive acquaintance among wholesale and retail druggists gave him a large influence in Association work, and he had the great faculty of inspiring confidence in every association of which he was a member, for both officers and members instinctively felt that if Thomas Penrose Cook was entrusted with a duty it would be most thoroughly performed. He never tired of working for his fellows in every walk of life, sensitive, modest, enterprising and not "slothful in business," he had the rare faculty of retaining as personal friends and well-wishers those who in their business relations were compelled to oppose him. Thomas Penrose Cook was large-hearted and generous in the treatment of those with whom he had business relations as an employer, he was always ready to speak of others in the best terms that he could and he did not do this as a policy; he was naturally kindly disposed towards everybody. His capacity for detail was extraordinary, this was exhibited in business, in association work, and in social affairs. He has been called home, but the members of the American Pharmaceutical Association will not soon forget the genial smile and the warm handclasp of our de-

ceased friend; the recollection of his unselfish services will never cease.

"JOSEPH P. REMINGTON.
"WM. JAY SCHIEFFELIN.
"C. F. CHANDLER."

The following has been received from the Committee on Resolutions on the late Ewen McIntyre:

"EWEN McINTYRE.

"WHEREAS, The American Pharmaceutical Association has suffered a severe loss in the recent death of one of its most faithful and devoted members, our former Honorary President, Ewen McIntyre, of New York City, the Nestor of American pharmacy, in his eighty-eighth year; therefore, be it

"Resolved, That we hereby express our appreciation of his sweet modesty, sterling integrity and pure character; and

"Resolved, That we bear testimony to his unselfish devotion and great services to the American Pharmaceutical Association; and

"Resolved, That we mourn his death as the loss of a true and noble friend and fellow pharmacist, whose memory will remain with us forever.

"H. H. RUSBY.
"J. F. HANCOCK.
"WILLIAM C. ALPERS."

Motion No. 17 (*Fred L. Frauenhoff, Life Member, Old Style.*) Moved by H. M. Whelpley, seconded by J. H. Beal, that Fred L. Frauenhoff, Aurora, Illinois be made a life member, old style without the publications of the A. Ph. A.

The Secretary and Treasurer have investigated conditions before deciding to make this motion.

Motion No. 18 (*Appropriation to Women's Section, A. Ph. A.*) Moved by J. H. Beal, seconded by J. W. England, that the sum of twenty-five ($25.00) dollars be appropriated to the use of the Women's Section of the American Pharmaceutical Association. The appropriation is approved by the Committee on Finance.

Motion No. 19 (*Election of Members.*) You are requested to vote on the following applications for membership:

No. 60. John T. Jacocks, Dyersburg, Tenn., rec. by Ira B. Clark and J. O. Burge.

No. 61. Louis Polk Brown, 312 6th Ave. N., Nashville, Tenn., rec. by J. O. Burge and William R. White.

No. 62. Charles Kohler 1518 Chestnut St., Philadelphia, Pa., rec. by George M. Beringer and J. W. England.

No. 63. Henry William Colson, 5755 Sangamon St., Chicago, Ill., rec. by Wm. B. Day and A. H. Clark.

No. 64. Adolph Emil Anderson, 3018 Racine Ave., Chicago, Ill., rec. by Wm. B. Day and A. H. Clark.

No. 65. Harlen Wilson Searight Carter, Philippine General Hospital, Manila, P. I., rec. by Wm. B. Day and A. H. Clark.

No. 66. Alexander Caldwell Stuckey, 6352 S. Halsted St., Chicago, Ill., rec. by W. B. Day and A. H. Clark.

No. 67. William John James Paris, Rosiclare, Ill., rec. by J. E. Paris and H. M. Whelpley.

No. 68. Henry L. Klopp, 3421 Spring Garden St., Philadelphia, Pa., rec. by J. W. England and Jas. A. Garvey.

No. 69. Kelly Edwin Bennett, 8 Everett St., Bryson City, N. C., rec. by J .O. Burge and E. D. Ruddiman.

No. 70. Frank D. Osborn, 526 W. 14th St., Davenport, Ia., rec. by J. H. Beal and J. W. England.

No. 71. Job Fong, care Chung Mei Drug Co, Canton, So China, rec. by Charles H. LaWall and E. Fullerton Cook.

No. 72. Jonas Frederick Rupert, Hooper, Neb., rec. by J. H. Beal and J. W. England.

No. 73. Theodore A. Piszczek, 948 Forest Home Ave., Milwaukee, Wis., rec. by Henry C. Schanck and E. G. Raeuber.

No. 74. Elizabeth Jenkins, 5th St. and Wayne Ave., Dayton, Ohio, rec. by Anna G. Bagley and J. H. Beal.

No. 75. Wm. P. Jenkins, 5th and Ludlow Sts., Dayton, Ohio, rec. by Anna G. Bagley and J. H. Beal.

No 76. Charles Edward Hoey, 11 Frederick St., So. Framingham, Mass., rec. by R. Albro Newton and Elie H. LaPierre.

No. 77. Charles Anthony Forbrich, 5023 Marshfield Ave., Chicago, Ill., rec. by E. Berger and J. H. Beal.

No. 78. Rufus William Vickers, Murfreesboro, Tenn., rec. by J. O. Burge and H. M. Whelpley.

No. 79. Walter Andrew Beal, Jolo, P. I., rec. by Carl L. Benche and Arthur Neville.

No. 80. Louis Jeremiah Pollard, Jolo, P. I., rec. by Carl S. Benche and Arthur Neville.

No. 81. Henry Warren Dietz, Sergeant

Hospital Corps, U. S. Army, Augur Barracks, Jolo, P. I., rec. by George A. Paul and Arthur Neville.

No. 82. David Levin, 5214 Ballard Ave., Seattle, Wash., rec. by C. W. Johnson and Harry J. Siegel.

No. 83. William A. McBath, 310 W. Clinch St., Knoxville, Tenn., rec. by F. W. Ward and Ira B. Clark.

No. 84. Bruno A. C. Hoelzer, 2403 W. North Ave., Chicago, Ill., rec. by W. B. Day and A. H. Clark.

No. 85. Claude Everet Hicks, 1822 South Lane St., Seattle, Wash., rec. by C. W. Johnson and Harry J. Siegel.

No. 86. William Palmer Kirk, 400 Donner Ave., Monessen, Pa., rec. by B. E. Pritchard and J. A. Koch.

No. 87. Ludvig Alexander Rudolf Svante Lundgren, McKeesport Hospital, McKeesport, Pa., rec. by B. E. Pritchard and Louis Saalbach.

No. 88. Frances Ellsworth Wells, Peoria State Hospital, Peoria, Ill., rec. by A. H. Clark and Maggie M. Gray.

No. 89. Dr. Wallace Calvin Abbott, 4605 N. Hermitage Ave., Ravenswood, Chicago, Ill., rec. by Clyde M. Snow and W. B. Day.

No. 90. Dr Alfred S. Burdick, 2148 Gidding Ave., Chicago, Ill., rec. by Clyde M. Snow and W. B. Day.

No. 91. Merle M. Burdick, 4846 N. Hermitage Ave., Chicago, Ill., rec. by Clyde M. Snow and W. B. Day.

No. 92. Frederick Hunsche, 4415 N. Winchester Ave., Chicago, Ill., rec. by Clyde M. Snow and W. B. Day.

No. 93. Franklin Peale Summers, 1525 Winnemac Ave., Chicago, Ill., rec. by J. W. England and W. A. Pearson.

No. 94. Fred H. Young, 1759 Ainslie St., Chicago, Ill., rec. by J. W. England and W. A. Pearson.

No. 95. Edw. H. Ravenscroft, 4757 E. Ravenswood Pk., Chicago, Ill., rec. by J. W. England and W. A. Pearson.

No. 96. Harloven McCousland, The Leon, 2703 N. Clark St., Chicago, Ill., rec. by J. W. England and W. A. Pearson.

No. 97. Patrick H. Lindley, Havana, Kan., rec. by M. W. Friedenburg and R. B. Bird.

J. W. ENGLAND,
Secretary of the Council.

COUNCIL LETTED No. 11.

PHILADELPHIA, March 3, 1913.

To the Members of the Council:

Motions No. 17 (*Fred L. Frauenhoff, Life Member, Old Style*), *No.* 18 (*Appropriation to Women's Section, A. Ph. A.*), and *No.* 19 (*Election of Members; Applicants Nos.* 60 *to* 97, *inclusive*), have each received a majority of affirmative votes.

Advices have just been received of the death of Professor Oscar Oldberg, Ex-President of the American Pharmaceutical Association, on February 27, 1913, at Pasadena, Cal.

The following communication has been received:

CINCINNATI, OHIO, Feb. 12, 1913.

We, the undersigned members of the American Pharmaceutical Association, do hereby petition the Council of the A. Ph. A. to grant us the permission to create a Branch of the A. Ph. A. in the city of Cincinnati, State of Ohio, said Branch to be known as the Cincinnati Branch of the American Pharmaceutical Association:

John Uri Lloyd, Charles T. P. Fennel, Theodore D. Wetterstroem, Charles A. Apmeyer, Frederick A. Weissmann, Charles G. Merrell, E. H. Thiesing, Julius Greyer, Edward Voss, Jr., Frank H. Freericks, A. O. Zwick, Fred S. Kotte, Wm. L. B. Brittain, Louis Werner, Otto F. Bange (Newport), J. Ferd Zuenkler, J. F. Kutchbauch, Otto Katz, George M. Merrell, A. M. Grenle (Newport), Charles F. Harding, F. W. Kisker, H. G. Schmuelling, Charles Diehl, J. W. Vester, Henry Eichler Charles Ehlers, Peter Robert Buchert, Rudolph Fack, Miss Bertha Ott, Lydia DeCourcy, Fred J. Minsterketter, Edward Lindemann.

Do you approve petition as above presented? This will be known as *Motion No.* 20 (*Petition to form Cincinnati Branch, A. Ph. A.*).

Motion No. 21 (*Election of Members*). You are requested to vote on the following applications for membership:

No. 98. Sidney Burke Willette, 3322 Bell Ave., St. Louis, Mo., rec. by L. Raymond Tyson and J. W. Mackelden.

No. 99. Edward Lindeman, 2216 Ohio Ave., Cincinnati, Ohio, rec. by Charles A. Apmeyer and Fred S. Kotte.

No. 100. Fred S. Kotte, S. E. corner 6th and Elm Sts., Cincinnati, Ohio, rec. by C. T. P. Fennel and A. O. Zwick.

No. 101. H. G. Schmuelling, 5th and Sycamore Sts., Cincinnati, Ohio, rec. by Charles A. Apmeyer and Theo. D. Wetterstroem.

No. 102. John W. Vester, S. E. corner 5th and Broadway, Cincinnati, Ohio, rec. by Theo. D. Wetterstroem and Charles A. Apmeyer.

No. 103. Louis Werner, 914 Race St., Cincinnati, Ohio, rec. by Frank H. Freericks and A. O. Zwick.

No. 104. Henry Eichler, N. E. corner 10th and Madison Ave., Covington, Ky., rec. by Charles A. Apmeyer and Theo. D. Wetterstroem.

No. 105. Frederick John Minsterketter, Auburn Ave. and Saunders St., Cincinnati, Ohio, rec. by Charles A. Apmeyer and Theo. D. Wetterstroem.

No. 106. Charles Diehl, 103 Hosesis Ave., Cincinnati, Ohio, rec. by Theo. D. Wetterstroem and J. W. England.

No. 107. Charles Frederick Harding, S. E. corner Liberty and John Sts., Cincinnati, Ohio, rec. by Charles T. P. Fennel and Theo. D. Wetterstroem.

No. 108. August C. Herting, 7043 Woodland Ave., Philadelphia, Pa., rec. by John R. Meinhart and Ambrose Hunsberger.

No. 109. Sidn. Iliff Conger, Sewanee, Tenn., rec. by J. O. Burge and William R. White.

No. 110. Gilbert A. Teegardin, 114 North Court St., Circleville, Ohio, rec. by Fred L. Fickhardt and Geo. B. Kauffman.

No. 111. H. S. Kirk, 519 J St., Sacramento, California, rec. by J. H. Beal and J. W. England.

No. 112. Rudolph Fack, 1626 Sycamore St., Cincinnati, Ohio, rec. by Charles T. P. Fennel and Theo. D. Wetterstroem.

No. 113. Peter Robert Buchert, Vine St. and Auburn Ave., Cincinnati, Ohio, rec. by Charles T. P. Fennel and Theo. D. Wetterstroem.

No. 114. Lydia DeCourcy, 827 W. 8th St., Cincinnati, Ohio, rec. by Charles T. P. Fennel and Theo. D. Wetterstroem.

No. 115. Miss Bertha Ott, Cincinnati, Ohio, rec. by Charles T. P. Fennel and Theo. D. Wetterstroem.

No. 116. George J. Elliott, 56 10th St., Detroit, Mich., rec. by J. H. Beal and J. W. England.

No. 117. William Leo Broadrup Brittain, 4408 Carter St., Norwood, Ohio, rec. by Theo. D. Wetterstroem and Anna G. Bagley.

J. W. ENGLAND,
Secretary of the Council.

Changes of Address

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of change of address is received before shipment or mailing.

Both the old and the new address should be given, thus:

HENRY MILTON,
From 2342 Albion Place, St. Louis, Mo.
To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

<>

SMITH, CARL E.,
From General Delivery.
To 1611 Franklin St., San Francisco, Cal.

DOOLITTLE, R. E.
From Washington, D. C.,
To 109 Hillside Ave., Glenn Ridge, N. J.

KREISINGER, K. L.,
From Omaha, Neb.,
To 548 Broad St., Fremont, Neb.

LUCK, J. A. W.,
From Oakland, Cal.,
To 2433 Telegraph Ave., Berkeley, Cal.

SPRAGUE, ADELBERT,
Twin Falls, Idaho,
To Main and Overland Sts., Burley, Idaho.

WILLIAMS, F. F.,
From Guimaras, P. I.,
To residence unknown.

POTTS, THOS.,
From 127 N. Dearborn St.,
To 122 S. Michigan Blvd., Chicago, Ill.

BROWN, FRANK L.,
From Boston, Mass.
To residence unknown.

SCHOENFELD, SAMUEL,
From Brooklyn, N. Y.,
To Irvington, N. Y.

SQUIBBS, CHAS. H.,
From New York, N. Y.,
To 16 Vine St., Brooklyn, N. Y.

LINDVALL, GUS,
From 501 15th St.,
To 1303 13th St., Moline, Ill.

SEYMOUR, JAMES,
From 1577 Cherokee St.,
To 1243 Cherokee St., Denver, Colo.

TANNER, T. B.,
From 7660 Hough St.,
To 1363 Central Ave.

RIESS, H. W.,
From Ft. McHenry, Md.,
To Ft. Wayne, Mich.

OLSON, FRED P.,
From Ashton, S. Dakota,
To Box 85, Mobridge, S. Dak.

FRICKE, CHAS. B.,
From Omaha, Nebr.,
To 556 Broadway, Council Bluffs, Iowa.

VANE, PATRICK P.,
From Ft. McIntosh, Laredo, Texas,
To 309 B St. S., Washington, D. C.

SENECAL, HENRY C., Sgt. H. C., U. S. A.,
From Ft. Totten, N. Y.,
To care Chief Surgeon, Manila, P. I.

TRANSMUTATION OF BOVINE TUBERCLE BACILLI.

Rabinowitsch expresses surprise that so little attention has been paid to the statement of Fraenkel and Krause over ten years ago that they found tubercle bacilli in the bile in five out of eleven tuberculous cadavers, that is, in 45 percent. She has recently examined seventeen cadavers, all with more or less advanced tuberculosis except one in which there was only a calcified mesenteric gland. The intestine was involved in eleven cases, including one with a liver process. Inoculation of guinea-pigs with the bile gave positive results in 70 percent, showing the danger of infection of others from bacilli in the stools as they may come from the bile as well as from swallowed sputum. The bacilli cultivated from the lungs were all of the human type, but those cultivated from the gall-bladder in six cases were of the bovine type in two. She thinks that these findings confirm the assumption of transmutation of one type into another. The tubercle bacilli infecting the body may persist in the original type in one organ while conditions in another organ may modify the type. It seems plausible to assume that bovine infection in children persists in a latent form until the bacilli become modified into the human type—this would explain why the bovine type may be prevalent in children while the human type is almost invariably encountered in adults. The fact that this transmutation outside of the organism has only rarely been observed in experimental research (O. Bang. Eber, Bongert) does not conflict with this assumption. Nature will not let herself be driven. The practical result of the research reported is a warning against the danger of elimination of tubercle bacilli in the feces from the bile, both in human beings and in cattle. A cow reacting to tuberculin without any apparent disease may infect the milk by bacilli in her feces. The importance of examination of the feces for tubercle bacilli in animals is emphasized by Fraser's recent report that he found infection of the bovine type in 60 percent of sixty-seven children with surgical tuberculosis at Edinburgh. Orth declares that if every tubercle bacillus of the human type could be annihilated at one stroke, yet all the measures in vogue against tuberculosis would have to be kept up just the same as long as bovine tubercle can be transmitted from animals to man.—*Journ. A. M. A., Vol. LX, p.* 634.

TYPHOID CARRIERS.

Conradi is convinced that endemic typhoid is maintained by the chronic carriers. Even with the intensive measures for stamping out typhoid introduced into southwestern Germany on an extensive scale in the last few years, it has proved impossible to detect all the chronic carriers. Each epidemic, however, was traced to a chronic carrier, and he states that five out of every hundred typhoid patients is left a chronic carrier. Another fact that has been established beyond question is that four times as many women as men become chronic carriers. He thinks that this has some connection with the fact that women are more predisposed to gall-stones than men; possibly the corset and tight clothes interfering with the circulation may explain the prevalence in women. He states that his experimental and clinical research to discover some way of sterilizing the carriers has failed of results. The only thing that can be done is the constant reminding of chronic carriers of the necessity for care and foresight. Measures for disinfection should be advised exactly the same as for typhoid patients. But his eight years of service in fighting contagious diseases has left him with no illusions as to the carrying out of these measures. This much is known, however, he adds, that the causes of endemic typhoid have now been revealed.—*Journ. A. M. A., Vol. LX, p.* 634.